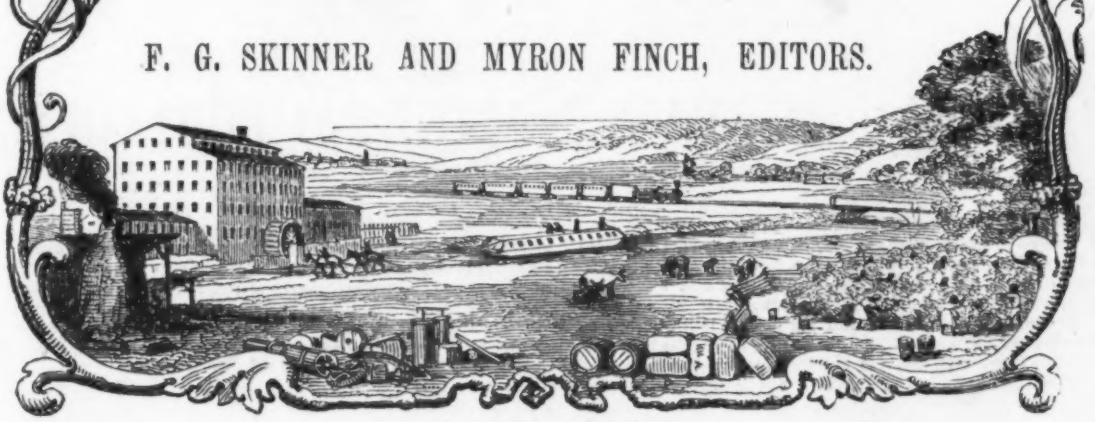
VOL. V. MAY, 1853. NO. 5.

THE PLOUGH

THE LOOM AND THE ANVIL.

FARMER AND MECHANIC.

F. G. SKINNER AND MYRON FINCH, EDITORS.



NEW-YORK:
PUBLISHED BY MYRON FINCH, 9 SPRUCE STREET.
PHILADELPHIA: R. C. THOMSON, 27 SOUTH SIXTH STREET.

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In the January number, we stated our purpose to furnish a PREMIUM to the subscribers of the Farmer and Mechanic. We had hoped, ere this, to have announced definitely what it would be. We now propose to furnish ALL of our subscribers with a Premium who make prompt payment, whether subscribers to the late Farmer and Mechanic, or the Plough, Loom and Anvil. We presume the Premium will be a large STEEL ENGRAVING OF WASHINGTON! Our number for June will contain particulars.

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The Plough, the Loom, and the Anvil.

EDITED BY F. G. SKINNER AND MYRON FINCH.

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CONTENTS OF NO. 5.—VOL. V.

The Plough, the Loom, and the Anvil.

PART II.—VOL. V. MAY, 1853. No. 5.

NATIONAL INTERESTS.

THE rise, progress, and present condition of the American Union, is one of the grandest epics in history. No nation has ever yet presented so magnificent a picture of national prosperity and improvement as that afforded by the noble confederacy of States, over which the stars and stripes float from the Penobscot to the Pacific, where the crystal streams leap down the rocky mountain sides, bearing with them the golden sands of a wealth that almost exceeds the dreams of imagination in its highest flights. The thirteen colonies of a European power, held by colonial ties to the mother-country, smarting under grievances which they deemed intolerable and unjust, declared their independence, and asserted those grand elemental principles of popular Liberty which are at once the basis and the assurance of progress and prosperity. Consequent upon the announcement of these principles, came that great test of faith in doctrine, and earnestness in conviction, which demanded ACTION as the pledge of devotion to these doctrines and these convictions. How nobly was that pledge redeemed! How gloriously fought and how illustriously fell those noble heroes, who were resolved to bequeath to their posterity a legacy of free institutions, which should be a blessing to the world by the beneficence of their sway and the lustre of their example! How sublimely appear those heroic sacrifices by which the establishment of our institutions was secured!

But passing from this theme, so often discussed, and so ably treated by the best minds America has produced, we propose to call the attention of our readers to those great national interests which it is the duty of the American artisan to cherish and develop, and those principles of public economy which should govern us with regard to the industrial prosperity of the American people.

The wealth of nations is considered to be the fundamental aim of political economy. Whatever can promote the wealth, and consequently the social and moral welfare of the people, becomes in proportion to its magnitude, an element in estimating the capacity of the nation for improvement, and for prosperity. If a granite rock lie on the most direct route between two important points, it is an obstruction and a damage, But should it be found that a railroad is needed, and culverts, or bridges, or viaducts are required in the vicinity, that granite rock becomes a source of public economy, because it furnishes at hand, with little or no cost of transportation, the best material with which to build. In proportion as the work requires this rock, does it become a source of public benefit. The great aim of political economy, then, is to apply those principles and laws of natural and moral action by which the most impracticable materials may be made to contribute to the public

good; and as in the case of the granite, so of any and all other sources of wealth, comfort, or convenience, in the ten thousand forms in which they occur in human society. Perhaps no article could appear to be less promising, as a source of wealth, than that of ice, the product of that season of the year when nature appears to withhold her bounties, and to be sparing of her gifts. Yet even ice has become a source not only of considerable wealth as an article of export to India, but in those eastern climes it has become a source of life and health to thousands. The public authorities of India have expressed their gratitude to the enterprising New-England merchant who originated the ice trade—that article being a most important auxiliary to the comfort and to the lives of thousands of the sick, either in preventing or curing diseases. The principle, starting from these homely illustrations, may be applied in all its fulness to any and every other source of wealth.

We have thus defined the aim of political economy to be the promoting of the prosperity and wealth of a nation, and to develop those laws which govern a people in their associated condition as a body politic. We shall attempt to sketch an outline of several principles, and present a few facts bearing upon these points, in the hope that they may not be uninteresting to our readers.

Wealth does not consist, in our view, in the possession of vast quantities of the precious metals. We think that a nation could do almost as well without as with them, could some other equally convenient standard of exchangeable value be adopted. Bullion is not wealth; it simply represents the wealth which it is designed to exchange. A man sells a thousand bushels of wheat for a thousand dollars in gold or silver: destroy the metal, and the wealth, or the wheat, still remains. The gold or silver, however, has been obtained by some means, and those means were the labors of miners, assayers, refiners, and coiners; it represents, therefore, only the LABOR of many men who could themselves have given their labor for their wheat. But as it is not always convenient to do this, an exchanging medium, instead of barter, is found more advantageous in a great part of the commercial operations of the world. Without pursuing this argument farther, therefore, we take it for granted that the distinction between the precious metals and wealth is fully recognized. These metals are valuable in proportion as they are scarce and difficult to reduce to current uses. Iron is abundant and easily reduced, hence it is cheap. Lead, copper, silver, gold, all have their relative values arising from these natural distinctions. In a word, then, we consider LABOR as the true and ultimate source of national wealth.

The most cursory view of the world will exhibit this principle. Take the poorest nations, and you will find them to be those in which they have little or no *industry*. The Indian makes his bows and arrows, his tomahawks and trinkets: but wealth he does not possess, for he has no industry. The people of the South Sea Islands make their fishing-hooks of the coral rock or the bones of the shark, or build their canoes; but wealth they have not, for they have no *industry*. The Indians of South America and of Mexico had the riches of the gold and silver mines of those regions, but they enjoyed wealth only so far as they used the precious metals in developing their arts and industry. The people of Mexico, to-day, have gold and silver mines, but it is the very poorest of the nations which are called civilized, for with all their mineral wealth, they have no organized national industry of any magnitude. And were the whole of Mexico, with its mines, to be added to our present vast territory, and a hundred or a hundred and fifty millions of dollars a year to be poured into our country's bosom, we should be poor in proportion as this

influx of gold led us to abandon those grand industrial pursuits upon which our prosperity can alone be firmly established.

The cotton crop is worth far more to us than the gold of California which we have thus far obtained. The wheat and corn crops of Ohio alone, and, in short, the productive industry of any of our States, with 750,000 to 1,000,000 of inhabitants, is worth more to us than the product of California. This is absolutely true as a commercial fact, for the grain crop of Ohio is worth more than the gold crop of the golden valley of the Sacramento, while it enriches the soil in return, instead of drawing off from it its valuable manures. Such crops are usually sure to afford a fair return, but a vast amount of capital and labor are fruitlessly lost in the chase for golden fortunes picked up in a day by one man, while a hundred have squandered capital, health, morals, and life in a bootless search.

But this fact is also true in another aspect. The immense quantities of gold we have received from California have not remained in our own country. The whole amount, nearly, has been shipped to Great Britain and France, where it now lies locked up in foreign banks, or stored up by money-savers, who are fearful of popular commotions. The question arises, Why has this gold been shipped to Europe in such vast quantities? The answer is plain: While we have been digging gold, we have been neglecting our productive industry, and enlarging our carrying and mercantile business, supplying many of our wants by purchasing in Europe what we should have produced at home. Now we apprehend that no man, woman, or even child of common sense will deny, that if a man spends his money and earns nothing, he will be on the high road to that undesirable point where he will find his purse empty; or the same will be the case, if he spends more than he makes. So in the case of a nation. If any nation spends a hundred millions more than it produces, or imports a hundred millions more than it exports, it must of course be in debt a hundred millions of dollars; to use the commercial phrase, the balance of trade is against it. Suppose a farmer raises a thousand bushels of wheat worth one dollar per bushel; but he finds at the end of the year that his labor has cost so much, interest so much, taxes so much, and his expenses of every kind amount to fifteen hundred dollars, which he has drawn out of the stores, merchants, mechanics, &c., with whom he has dealt: he finds that he is in debt, or, as the phrase is, *the balance of trade is against him.* He must curtail his expenses, he must work harder, *he must sell more than he buys*, or he cannot save himself from ruin. So of a mechanic; he finds that he has spent more than he has earned, and the balance of trade is against him, and he changes his course or inevitably fails.

This is the precise conditiou of a nation. If we export to foreign countries one hundred and fifty millions per annum, and import two hundred millions, we run in debt fifty millions. In the soft language of commercial men, the balance of trade is against us fifty millions. A few years of such trade exhaust the means of a nation as well as of an individual, and there follows what is called a *revulsion*—that is to say, plainly, a general bankruptcy.

The great point we contend for, then, is simply this: That the profitable and general development of all the industry of a nation is the only true and reliable source of its wealth and prosperity. National interests are simply the interests of LABOR, developed, guarded, and fostered by the policy of the Government. We will apply this view of the question to a few leading facts:

Our country is rich and diversified in soil, climate, and productions of every kind, vegetable and mineral. A bountiful nature has placed within our reach

the means of supplying almost all our wants, and of being independent commercially and industrially, as we are politically, of other nations. Yet we are too much disposed to purchase of foreign nations what we can and should ourselves produce. This buying of foreign products is only buying LABOR, for all that we import is simply LABOR compressed into various forms. A ton of iron ore is worth but a trifle in the rock, but when carried to the furnace, it has an additional value. When run into blooms, it gains an additional value, by reason of the LABOR spent upon it. When rolled into bars, the labor added increases its value still more, and when wrought into nails, steel, cutlery, or machinery, what is it but LABOR which gives it the most of its value? A pound of iron is worth but a few cents, yet the labor and skill of making it into watch-springs gives it a value of hundreds of dollars.

A block of marble lies in the rocky cliff: it is worth not one cent. But apply LABOR, and take it to the marble-shop, where it can be cut and polished, and carved and sculptured, and behold, the valueless block of marble has been made worth thousands of dollars by the art, the science, and the LABOR of many hands.

Illustrations innumerable might be produced of a like character, and all tending to prove the great axiom, that LABOR is the true source of the wealth of a nation. But so far we have not spoken of the agriculturist, in the advantages which he derives from this encouragement of the LABOR of a nation. Let us briefly look at them.

One of the great articles of import at the present time is iron, and particularly railroad iron. Now, we have of this valuable metal inexhaustible supplies at our own feet, which only need to be worked to become a source of national wealth. Yet we go three thousand miles to buy our iron, and pay cash for it, or give bonds and mortgages on our railroads, when we could produce it more cheaply in our own country. We admit that the *money* price may be higher here than we apparently pay to England, but our own iron is the cheapest, as will seen by the result.

The production of one million of tons of iron in our country is worth, say at $40 per ton, $40,000,000. Now, we ask whether it is not better to spend these $40,000,000 among our own mechanics, merchants, farmers, and miners; and whether the country is not far richer and better off, to use a familiar phrase, than to buy the same quantity of English and Scotch iron for $30,000,000, and send the money out of the country? Thirty millions are thereby taken from our currency and sent to benefit the currency of Europe! Where is nearly all the gold of California, dug up by American hands? Gone to Britain to pay for the iron produced by British workmen, while *American workmen* have been driven from their mines, their furnaces, and their forges, to lie idle, or go to the soil for a chance of support. These are facts of which the past few years have given many examples.

The furnaces in Mercer county, Pennsylvania, are capable of producing 25,000 tons of pig iron, and employing 1860 hands. Under the present system of buying English iron, 9 furnaces out of 16 stopped, and the rest for some time turned out only from one fourth to one half their work. Instead of 1860 hands, only 480 were employed. Instead of 25,000, only 6,000 tons of iron were produced, and consequently nearly FOURTEEN HUNDRED MEN were out of employment. If one half these men had families of 5 persons each, (the usual ratio,) there were 4000 persons in one single neighborhood who were thus left broken down in their LABOR by this system. In Pittsburgh, Pennsylvania, where a large number of iron works have been closed,

FOURTEEN HUNDRED AND FIFTY men were thrown ont of employment by the same cause.

We put it to the patriotism and common sense of every man, whether this is better than to employ them at good wages, so that they shall be able to support their families, and mutually aid in bearing the burdens imposed upon the citizens of our favored land.

But, says the merchant, the mechanic, and the agriculturist, What is all that to us? We do not see how paying a Pennsylvania iron man $40 is to be to our advantage, when we can get it for $30 abroad! The argument and the facts are so important and so comprehensive, that we cannot undertake to dwell upon them fully here. We will simply say that there is such a mutual action and reaction among all classes of men and branches of business, that when one suffers or prospers, the injury or advantage is felt reciprocally by all.

It is plain, or should be, to every farmer, that the nearer he is to his market, the less he will have to pay in time and cost of transportation. For instance: A has a farm within 10 miles of a good market; he can take his produce thither, at a cost of say 10 per cent. B is located 20 miles distant, and C is 30 miles distant. Now every man knows that A's farm is worth more than B's, and B's is worth more than C's, even supposing them to be equal in other things. And for this reason: A sells his bushel of wheat for a dollar, but it has cost him 10 cents to get his grain to market. B sells for a dollar, but he has paid 20 cents; and C sells for a dollar, but has paid 30 cents in expenses. A has 90, B has 80, and C has only 70 cents for his wheat. Now, if a market can be opened so near to C's farm that he will have to pay only 10 cents in expenses, he will be as well paid as A. This is just what would be effected were our views carried out. A farmer in Mercer county, Pennsylvania, sends his produce to market. He must send to Philadelphia or New-York. He gets his dollar, but there is a large deduction for transportation, merchants' commissions, per centage, &c. But it is discovered that there is a rich treasure of mineral wealth at his door, furnaces are built, forges are constructed, rolling-mills are put up, men are wanted, houses are wanted, bricklayers, carpenters, blacksmiths, saw-mills, coal-burners, merchants, school-houses, school-teachers, churches and ministers; and the farmer finds that instead of depending on Philadelphia or New-York for a market, which is already full, because *every* farmer depends on the same market, he has one now at his own door. He finds that he can sell potatoes at a good price which would not before pay the expense of transportation. He finds that he can sell garden vegetables, which he could not carry to market; and the iron-men, having a market can sell their iron, and get their money for it, because it is cheaper to carry manufactured iron to market than bulky potatoes or corn. The iron-man pays the farmer, the farmer pays the merchant, the printer, the school-teacher, and the minister, because, as these neighbors all depend upon each other, so they all help each other, and all are mutually benefited.

Now, suppose a cloth factory instead of or in addition to the iron furnace; the farmer's wool can be sold at a fair price to be worked into cloth. Wool would hardly pay the trouble and cost of sending it a great distance by inland team routes. But at the factory it is woven into cloth; and in its most compact shape, with the advantage of the dye-stuffs, and the labor of machines and machinists, a large value of labor at the farmer's door can be sent to a distant market at a small cost. And so of every thing else.

Now suppose, instead of this, we buy of foreign countries. Whenever we

buy of foreign countries a yard of cloth, we cheapen our own labor to that extent. For if we did not buy foreign, we would buy American. Every yard of foreign cloth, and every hundred-weight of foreign iron, is so much of our own cloth or iron—and, as before shown, so much of our own LABOR—thrown away or cheapened. If we buy of foreign countries, the furnace at C's door must stop and its fires must die out, and the iron-men must either turn farmers, and thereby overstock and cheapen C's market, or they must go to some other region to find labor. In either case, the happy farmer, Mr. C., must lose a large part of the value of his produce, and consequently his land will fall in value, and his property be depreciated. The same will follow when the factory, or the machine-shop, or the saw-mill closes. The logs he sells to the mill are wanted no more, for there is no market near enough at which to sell the lumber, and there is no more improvement in the neighborhood. The rough frame houses do not give way to handsome cottages, but the cottages where the workmen lived are tenantless; they have no rent-payers within them now, for they have removed to other States to build a log cabin, or they are to be found in that old house they had formerly left, and which is now almost unfit for a human habitation.

The reason is, that LABOR, by which the working-man is enabled to supply his wants, has no market; and the labor, the capital, and the interests of the farmer, the mechanic, and the merchant are so nearly allied and reciprocal that they all suffer alike.

The grand idea, then, which we would aim to present to our readers, is this: As the social and moral interests of a nation depend, in a great degree, upon the prosperity of the people, and as prosperity flows from a profitable and constant development and employment of the industry of the nation, so the great end of political economy and administrative policy must be to secure the best, the most constant, and the nearest market for the products of the LABOR of the people. In one word—a DIVERSIFIED INDUSTRY, a WISE GOVERNMENT, and an ENLIGHTENED VIRTUE, are the true bases of American interests.

THE AURORA BOREALIS AND THE ELECTRIC TELEGRAPH.

G. P. B., a telegraphic operator, writes to the *Boston Traveller* the results of six years' experience in determining what effect the Aurora Borealis exerts upon the telegraphic wires. We copy:

On the House, Morse, and other *magnetic* telegraphs, the effect produced by the Aurora is generally to increase or diminish the electric current used in working the wires; sometimes it entirely neutralizes it, so that in effect no fluid is discoverable on them. As, however, the Bain, or *chemical* telegraph, is much the best adapted for observing the precise effect produced by the Aurora, I shall confine myself principally to it. In this system, the main, or line wire, is brought into direct contact with the chemically prepared paper, which lies on a metal disc, connected with the ground; any action of the atmospheric current is therefore immediately recorded on paper.

During a thunder-storm, the atmospheric electricity attracted by the wires passes over them to the chemically prepared paper, and thence to the ground. As it passes from the wire to the paper, it emits a bright spark, and produces a sound like the snapping of a pistol. Atmospheric electricity never remains for any length of time on the wires; it will, however, sometimes travel many

miles before discharging itself. I have seen discharges of electricity from the instrument, which emanated from thunder-storms forty or fifty miles distant.

The effect produced by the Aurora Borealis on the wires, and the record on the paper, is entirely different from that of the atmospheric current. Instead of discharging itself from the wires with a flash and report, and without the aid of a conductor, as is the case with the latter, it glides along the wires in a continuous stream, producing the same result on paper as that produced by the galvanic battery. It is well known that only the positive pole of the battery produces the colored mark on the paper—the negative having the contrary effect of bleaching it; the same is also true of the two currents from the Aurora. The current usually commences lightly, producing a light blue line, just perceptible on the paper, and gradually increases in strength, making a dark blue, and then a black line, till finally it becomes so strong as to burn through several thicknesses of it; it then gradually disappears, and is followed by the bleaching process, which entirely neutralizes the current from the batteries.

In my diary of September 29, 1851, I find the following account of the effects of the Aurora on the evening of that day: "All the lines leading from the city are so strongly charged with atmospheric electricity this evening as to prevent operation. The surplus current on the Chemical Line is equal to one hundred and fifty Grove's cups; and the same seems to be the case on the House and Morse wires. The weather is cloudy, but through the clouds we can occasionally see the brilliant scintillations of an Aurora Borealis." The next day I ascertained that the Aurora, as seen from Providence, New-Haven, and other places, was very brilliant. February 19, 1852, I find the following description of the effects of the Aurora of that date, in my journal: "Towards evening a faint blue line appeared on the paper, which gradually grew stronger and darker, until at last it burned it; then gradually grew fainter until it disappeared, when it appeared again in a new form, bleaching instead of coloring the paper. This singular phenomenon continued until we closed, at a late hour in the evening. The Aurora was very brilliant in the evening."

Mr. Rowe, Superintendent of the Boston and Vermont Telegraph Company, showed me specimens of paper taken from instruments on that line, at 12 o'clock at night—three hours after the batteries were taken off—which were covered with light and heavy blue lines and bleachings. These were caused by the Aurora of the 19th February.

Our troubles from the Aurora are not confined to the evenings entirely, though they are more frequent then. On several occasions I have predicted in the afternoon that we should have an aurora in the evening, judging by the effect on the wires at that time, and I do not recollect that I have ever been mistaken in my predictions.

Thursday, April 22, 1852, we were much troubled by an atmospheric current; sometimes preventing our working for half an hour or more, and then disappearing for about that time; the current was constantly changing during the whole evening. We had a very brilliant display of the Aurora.

The Aurora Borealis seems to be composed of a vast mass of electric matter, resembling in every respect that generated by the electro-galvanic battery; the currents from it change, coming on the wires, and then disappearing, as the mass of the Aurora rolls from the horizon to the zenith; sometimes so faintly as to be scarcely perceptible, and then so strongly as to emit one continuous blaze of fire—yet very different from what we commonly term atmospheric electricity, and which we cannot relieve ourselves from, as in the latter case, by placing ground wire conductors in close proximity to the line wires.

INFLUENCE OF OCCUPATIONS ON LIFE.

One of the most interesting departments of the Registration Reports published annually by the State, is that which relates to the influence of occupations on the duration of human life. In the last Report, which is now before us, there are tables exhibiting the average ages and vocations of persons over twenty years of age, who have died during the year 1851, and also exhibiting the same for a period of seven years and eight months; viz., from May 1, 1843, to Dec. 31, 1851. Taking this last as our guide, we find that the average duration of life in Massachusetts is as follows:

Agriculturists,	64.02
Laborers,	45.10
Mechanics,	46.01
Merchants,	46.12
Paupers,	67.52
Professional Men,	48.45
Public Men,	50.00
Seamen,	43.07
Average,	51.94

The longest livers are distillers, whose average age is over 74 years. But six men of this profession, however, have deceased within the time embraced in these tables. Pilots stand next, their average lifetime being nearly 72 years. Weighers and Gaugers live 70 years, omitting fractions; Gentlemen, 68; Caulkers and Gravers, Judges and Justices, 65; Bank Officers, Sheriffs and Constables, 62; Millers, 60; Coopers, 58; Tobacconists, 57; Lawyers, Sailmakers, Shipwrights, Stevedores and Sextons, 55; Tallow Chandlers and Hatters, 54; Wood Turners, 53; Millwrights, 51; Carriage-makers and Riggers, 50; Carpenters, Tanners, Curriers, Brokers and Soldiers, 49; Innkeepers and Grocers, 48; Butchers, Druggists, Masons, Papermakers, Wheelwrights, Cooks and Victuallers, 47; Expressmen, Traders and Cabinet-makers, 46; Leather Dressers and Weavers, 45; Watchmen, Booksellers, Tailors, Harnessmakers, Founders, Bakers and Ticket Masters, 44; Brick-makers, Furnacemen, Manufacturers, Shoemakers and Wool Sorters, 43; Silversmiths, Painters, Bookbinders, Cardmakers, Coppersmiths and Jewellers, 42; Artists, Stablers and Teamsters, 41; Musicians and Welldiggers, 40; Cigarmakers, Dyers, Upholsterers and Glass Blowers, 39; Engravers, Whip-makers and Drivers, 38; Drovers, Teachers, Civil Engineers, Pedlers and Printers, 37; Machinists, Tinsmiths and Comedians, 36; Editors, Chimney Sweeps and Confectioners, 35; Shoecutters, Railroad Agents and Conductors, 34; Clerks, Dentists, Engineers and Firemen, 33; Operatives and Reed-makers, 32; Pianofortemakers, 31; Powdermakers, 30; Stove Dealers and Baggage Masters, 29; Fencing Masters, News Carriers and Cutlers, 28; Brakemen, 27; Students, 23.

Among females who are engaged in regular occupations, the longest-lived are Nurses, whose average age is 55; next come Housekeepers, 52; Shoe-binders, 45; Seamstresses and Domestics, 43; Tailoresses, 41; Strawbraiders, 36; Milliners, 35; Dressmakers, 32; Teachers, 28; Operatives, 27. The average age of the above classes of females is 46.78 years, which is five years and sixteen-hundredths less than the average of males.

The tables from which we have gathered the foregoing facts extend over a sufficient period of time to enable us to deduce some important and

truthful conclusions. In the general divisions of occupations it will be observed that the Agriculturist stands first on the list in length of life, the average age of this class being no less then 64 years. This is fully twelve years above the general average, and nearly nineteen above the average age of those returned as laborers, and eighteen per cent. above that of mechanics. But when it is considered that none are embraced in the table who died prior to their twenty-first year, the difference is really much more important. Starting, then, at the commencement of the twenty-first year of life, the farmer has the prospect of 44 years before him, while the shoemaker has the prospect of only 23. Next to agriculture, there are probably more of our citizens engaged in shoemaking than in any other occupation. In 1850, there were 55,082 farmers in the State, and 31,944 shoemakers. The carpenters number only one half as high as the shoemakers. The latter form so important a part of our industrial community, that the question may well be raised, whether means cannot be devised to diminish the unhealthy tendencies of their labor. The mortality among shoemakers, we suspect, is to be ascribed as much to the small, overheated and unventilated rooms in which the trade is usually pursued, as to the sedentary nature of the employment itself. Larger workshops, well ventilated, and with a temperature regulated by the thermometer, would do wonders for our friends of the lapstone. A little garden-patch in addition, just large enough to scratch round in an hour or two each day, would doubtless add much to the value of the prescription.

TEMPERATURE AND CLIMATE.

In our April number we illustrated this subject by showing the influence of mountains, of the sea, and of winds upon climate, producing many and great diversities of temperature, moisture, &c., in places on the same parallels of latitude. The facts there stated but partially show the extent of the influence thus exerted. We purpose now to add a few facts that shall exhibit more definitely the actual condition of different parts of the globe in these respects.

The isothermal lines, or "lines of equal temperature," under the tropics, run across the Atlantic nearly parallel to the equator, but on the middle latitudes they bend southerly towards the coast of America. They run nearly parallel into the interior of this continent, till they pass the Rocky Mountains, after which they bend again northwards. Baron Humboldt gives us the following as the actual mean temperature of different latitudes on the west side of the Old Continent and the east side of the New:

	Old Cont.	New Cont.
at 30° lat.	70° 5′	66° 9′
" 40 "	63 1	54 5
" 50 "	50 9	38
" 60 "	40 6	42 2

The extremes of heat and cold occur at Quebec, where the summers are as warm as at Paris, and the winters as severe as at St. Petersburgh.

In the United States, climates have been classified as follows: 1. New-England; 2. Thence to the Potomac; 3. (hot) Virginia, Carolina, and Georgia to Florida, where (lat. 29°) frost is unknown; 4. Tennessee, Kentucky, and territories north-west of Ohio and Louisiana.

We have already stated that forests discharge more water by evaporation

than does the ocean. The result of this is, that tracts of land covered with trees are much colder than those which have less surface of vegetable growth. All luxuriant vegetation, including, of course, that of our cultivated fields or gardens, has a similar influence; and the changes produced by destroying the native forest are noticed even by the most careless observers.

In ascending mountains, or by balloons, the heat is found to decrease nearly in arithmetical progression. We give in the following table, in the first column, the latitude; in the second, the mean height of the lowest terminus of congelation; and in the third, the mean height of perpetual congelation. The distances are in feet.

0°	15,577	20,000
10°	15,067	27,084
20°	13,719	24,661
30°	11,592	20,838
35°	10,664	19,169
40°	9,016	16,207
45°	7,658	13,730
60°	3,684	6,446

The quantity of aqueous vapor contained in the atmosphere varies from about one fortieth the weight of the incumbent atmosphere within the torrid zone, to less than one ten thousandth part in the polar regions. This is one source of the great diversity in the amount of dew, clouds, rain, snow, thunder, lightning, &c., in different places. The various disturbing causes we have named, with others of minor importance, necessarily occasion still greater diversity, both in temperature and moisture. A general result, however, of the annual number of rainy days and the depth of rain is attainable in the various latitudes, and is substantially as follows:

From	12°	to	43°	north latitude,	78	rainy days.
"	43	"	46	"	103	" "
"	46	"	50	"	134	" "
"	50	"	60	"	16	" "

The annual depth of rain, and the average number of rainy days, in the places named below, are as follows:

British Islands, - - -	32 inches,	156 rainy days.
Western France, - -	25 "	152 "
Eastern " - -	22 "	147 "
Central and Northern Germany,	20 "	150 "
Hungary, - - -	17 "	111 "
East Russia, (Kesan,) - -	14 "	90 "
Siberia, (Irkoutsk,) - -	14 "	60 "
Massachusetts, (Boston,) -	39 "	97 "
At tue Equator - - -	95 "	70 or 80

In western Europe it rains twice as many days as in the eastern part. In Ireland it rains three times as many days as in Italy or Spain. On the western side of Ireland it rains on 208 days, as an annual average. In England, France, and the north of Germany, there are from 152 to 155 rainy days annually. In Siberia, only 60 days. On the western coast of England, 37 inches of rain fall, and on the eastern, only 25. In Sitka, North America, it rains almost perpetually, having sometimes only some 40 days of fair weather in the year. Most of the following localities are exceptions to the

general rule we have given, while our previous illustration of various disturbing causes will furnish a full explanation:

In Bombay, latitude 20°, there fall annually from 61 to 112 inches. In Cuba, 142 inches. Vera Cruz, in Mexico, which is backed by high mountains, and where the tropical air is driven by the trade-winds across the sea, is variously set down at 62 inches and from 120 to 178 inches. Delhi, on the plain of the Ganges, lat. 28°, 23 inches. Lisbon, lat. 30°, 27 inches; the table-land in Spain, 11 inches; the plains of Lombardy, about 45°, 36 inches; the south foot of the Alps, 58 inches, their northern foot, 35; the southern foot of the Apennines, 64, their northern foot, 26; at Bergen, the current of wind being arrested by mountains, as in some of the examples just given, rain falls to the depth of 88 inches.

In this country, the annual depth of rain in the places designated is as follows:—In Hanover, N. H., 38 inches; in the Western Reserve, O., 36 inches; Marietta, O., 41 inches; Fort Crawford, Wisc., 30 inches; St. Louis, Mo., 52 inches; in the State of New-York, 36; in Philadelphia, 45 inches.

There is an important difference in different localities, not apparent from the forms of statement here given. In many countries the rain falls every month, while in others the rains are confined to certain seasons of the year, so that they have their wet and dry seasons, in the latter of which rain seldom falls. The reasons for this fact are obvious.

Winds that blow over the ocean or other large bodies of water are heavily freighted with vapor, while those which pass over continents are generally deprived of moisture on their passage, either by hot and dry sands, or are arrested by contact with mountains, as shown in a former article. Hence, where the winds are periodical, there will be this marked succession of wet and dry seasons.

The western coast of Decan, the coast of Malabar, has its rainy season during the monsoon of the *south-west.* During the winter these winds ascend the lofty sides of the western Shauts, and cause violent and abundant rains. Along the coast of Coromandel, the *north-eastern* monsoon is freighted with vapor, while the south-western is dry. From the eastern coast of Africa and Madagascar, across the Indian Ocean, to the northern districts of Australia, and from the tropic of Capricorn to the Himalayas, the interior of China, and to the Corea, the western coasts are watered during the south-west monsoon, which prevails from April to October, while the eastern coasts are watered during the north-eastern monsoon, which blows from October to April. In the southern hemisphere, the rainy season corresponds with the south-western monsoon, and the dry with the south-eastern.

In northern Africa, it seldom rains in the summer months, nor does it rain during that season in the southern parts of Spain, in Portugal, Sicily, southern Italy, Greece, or the north-western part of Asia, but it falls copiously in other seasons, and particularly in winter. In Africa, near the line, the rainy season begins in April, on the coast and in the interior. In the regions watered by the Senegal, rain falls from June to November. On the Coromandel coast, the seasons are reversed: from March to June the winds are hot and moist, blowing mostly from the south across the bay of Bengal. From June to October the heat is intense; but about the middle of October the cool north-eastern monsoon commences and brings the periodical rains, which terminate by the middle of December, though the same wind continues till March. In Congo there is no rain from March to September, though the south and south-east winds cool the burning atmosphere. In October, the hot and humid winds from the north-west, crossing the Gulf of Guinea,

flood the country with rains till January. Slight showers then prevail till March.

We may here remark that north of the equator the south-western monsoons prevail from April to October, and the south-eastern from October to April, while south of the equator these periods are reversed.

In the Pacific, the north-east trade-wind prevails between latitude 2° and 25° north, and the south-east trade-wind ranges, probably, from 10° to 21° south latitude. In the Atlantic, the north-east wind extends from 8° to 30° north latitude, and the south-east, from 3° to 28° south latitude; though the limits are not stationary, but vary with the sun's place in the ecliptic. The trade-winds and the monsoons also interrupt each other's progress in a direct line, and by this collision of winds the direction of the current is materially changed.

Or, we may vary the form of statement as follows:—The province of AUTUMNAL rains includes all Europe south of the Carpathians; western France, the delta of the Rhine, northern and western Scandinavia, and the British Isles. More rain falls in these countries in autumn than in the other three seasons. The province of SUMMER rains comprises the eastern parts of France, the Netherlands, except the delta of the Rhine, the north of Switzerland, Germany north of the Alps, the Carpathian Mountains, Denmark, Northern Scandinavia, Central Europe, and the countries beyond the Ural Mountains to the interior of Siberia, where showers are very rare in winter.

In the southern hemisphere, winter is the rainy season in Chili and the south-western part of South America, while on the east side of the Cordilleras the rains fall in summer. At the extreme part of the continent, Terra del Fuego, it snows and rains throughout the year.

Northern and Southern Africa, Madeira, south Spain, Portugal, Sicily, southern Italy, Greece, northern and western Asia and Australia have their rainy seasons in the winter months.

During the reign of George I., John Parry, a native of Switzerland, sent a memorial to Parliament, in which he says: "There is a certain latitude on our globe, so happily tempered between the extremes of heat and cold, as to be more particularly adapted than are other climates to certain rich productions, among which are silk, cotton, and indigo." This latitude he fixed at about 33°. Experiment confirmed this opinion, and Mr. Parry settled on the river Savannah, between Carolina and Georgia, and cultivated those crops. But this is a branch of our subject that we must defer to a future opportunity.

PERSPECTIVE DRAWING.

We have shown that the shape of the perspective square, while the horizon remains unchanged, depends upon the distance of the beholder. It is obvious, however, that to prevent a change in the horizon, as the beholder recedes from a given view, he must have a more elevated position. For when the position of the eye is changed on the plane of the picture, the horizon also changes. The beholder is the centre of the circle which forms the horizon, and of course it changes with that centre. But it is clear that it is possible to assume a point of elevation as one recedes from a given object, so as to retain the same horizon *at a given point;* and though the horizon will change in other directions with every change of position, that portion of the horizon which we wish to incorporate in our picture remains, as we have supposed, unchanged.

Thus, a person at *a* can see the top-masts of the vessel in the distance. If he recede from the ship, and would still retain the same view of her he had

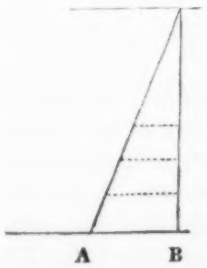
before, he must secure an elevated position; and the farther he recedes, as from *a* to *b*, or to *c*, he must secure a position still higher at each remove.

This diagram also illustrates the remark made in the second number, (April,) that the shape of the perspective square is dependent upon the *radial distance.* For the radial distance is determined by, or rather is dependent upon, the distance and elevation of the beholder.

But, in perspective drawing, where shall we assume the line of the horizon, and where appoint the radial distance? We answer, first: If you would give a true representation of a given landscape from a certain point, the facts of the case must decide. You must take the actual distance of the position from the scene you would represent. If, on the other hand, you wish to know what distances to assume when you would represent a given object, as a house, or field, &c., truthfully, and in a manner to produce the best effect, we answer as follows:

The *radial distance* should not be less than twice the width of the picture. This rule is not arbitrary, but of necessity. The eye can view at once, with tolerable distinctness, about 30° of the horizon, or one sixth of a semicircle. In surveying a wider range, the head must be turned—or, in other words, we view two or more pictures *in succession.* This fact is the basis of our rule. A radius is one sixth of a circle. But the radius is the distance of the beholder from the horizon, and hence that distance, to be true to nature, should not be less than one sixth of 360°, or 60°, which is twice the width of the field of clear vision. The radius may be more than this relative distance, because we can take a view of less than 30° of the horizon, if we please.

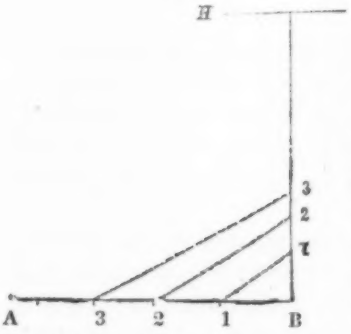
Suppose you wish to represent a view having a width of 300 feet, you assume a position at least 600 feet from it. Your sheet admits a picture 12 inches in width: that is, a ground line of 12 inches. Doubling this, you have 24 inches, to be set off on the horizon from the point of sight for your *radial distance.* Every inch of the ground line represents twenty-five feet. It is also obvious that this distance of twenty-five feet is represented by shorter lines in those portions of the view which are nearer the horizon. At the horizon, all distances or lengths come to a point. The length of any line, at intermediate points, will be in inverse proportion to its distance from the ground line.



Let A B represent any given distance on the ground line as 25 feet. Draw lines from each of its terminations to the point of sight, S. All lines parallel to A, B, drawn between the horizon and the ground line, will alike represent 25 feet. It is well to draw a diagram of this sort, properly graduated into fractional parts, to which you may refer for any distances desired, not measured on the ground line.

But how shall we determine distances in a direction *perpendicular to the ground line?* The mode is simple, and its reason is plain. Divide the ground line into equal parts, as may suit

your convenience. Lay a straight-edge on each or either of these subdivisions, and also on the radial point, and the point where this edge cuts a line drawn from the point 0, or the point from which these fractional parts were measured to the point of sight, will represent the *perspective* distances or lengths on this perpendicular of these fractional distances so graduated on the ground line.

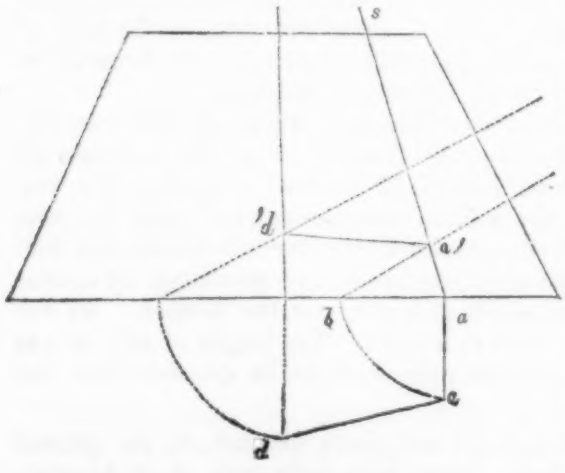


Thus, draw a ground line, A B, and a line perpendicular to it, to the line of the horizon H; mark off distances representing, say 5 inches, 5 feet or rods, &c. Placing a straight-edge as a rule, on these points, 1, 2, 3, &c., on the ground line and on the *radial point*, (on the line H continued a sufficient distance,) mark off on the perpendicular the points of intersection, 1, 2, 3. This gives the lengths on the perpendicular, which correspond with those marked on the ground line.

This illustrates the principles involved in drawing any object in perspective, and how the position of any point in it may be readily determined. For convenience, it may be stated in form, as in the following

RULE *for transferring any point into its place in perspective:*

First. Connect it with the ground line by a perpendicular. Second. From this point of intersection, draw a line to the point of sight. Third. Set off from this point of intersection its distance from the ground line, measured on the ground line, and connect by a straight-edge this point last found with the radial point. The intersection of this straight-edge with the line from the ground line to the point of sight, will be the point required.



Thus, to set off a point 25 feet or rods from *a* on the ground line, in the square in the margin, measure 25 feet from *a* to *b* on the ground line; connect *a* with the point of sight; apply a straight-edge to *b* and to the radial point, and the intersection of this edge with *a s* gives the point required.

If a LINE is to be thus placed in perspective, fix both its terminations by the process just given, and then unite them.

If a POLYGON is to be placed in perspective, fix all its angles by this process, and then unite them by lines.

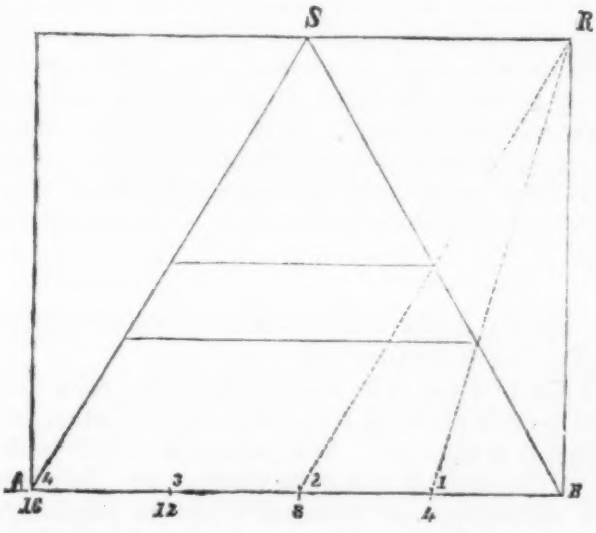
☞ If these several points, whether one or more, are already drawn on paper, but not in perspective, and are to be transferred to a perspective square, draw lines from each to the ground line, and perpendicular to it, as from *a* and *d* to *c* and *g* in last figure. From these points of intersection on the ground line as centres, draw arcs from the several points to the ground line, and apply the straight-edge on the points of intersection of these arcs with the

ground line, and on the radial point, as before. The intersection of this straight-edge with the lines previously drawn, designates the several points required.

This mode of determining the points required is often very inconvenient, from the extent of paper which is necessary to obtain the radial point.

A plan has been devised for dispensing with these long lines, which enables us to keep every thing within the limits of the picture. It is based upon the doctrine of similar triangles.

Suppose the radial distance is 8 feet, the picture being 4 feet square, and the point of sight in its centre: the distance from the point of sight to the margin will be 2 feet. Divide the base or ground line into four equal parts, each will represent a foot. Half the width of the picture is one fourth the radial distance. Now, if we assume the margin of the picture as the radial point, and consider each of the divisions of the ground line as representing four times what it really is, we shall have the same result as by the more cumbrous process already described. Let us illustrate by a diagram :



Here we assume the terms just denoted. S R is 2 feet, and forms one fourth the radial distance. Each division of the ground line represents 1 foot. Let us call S R 8 feet, and each division of the ground line 4 feet, and the result will be very conveniently attained. From division 1, now worth 4, draw a line to R, cutting B S, and we get the termination of a perspective square. From second division, now worth 8, draw a line to R, and we get the boundary of the second perspective square, or, in all, 8 feet front and 16 *perspective feet* in depth.

Any other fictitious value may be given to the parts of the radial distance, provided the value of those parts on the ground line be increased in the same proportion. Thus, half S R might have been taken for the whole radial distance, and then its fictitious value would be eight times its true value, and each division of the ground line would be worth 8 feet; or, if the radial distance is taken as three times the width of the picture, and R is assumed as the radial point, the fictitious value of S R becomes increased six times, and each foot on the ground line is worth 6 feet; or, if half S R were taken for the radial distance, each division of the ground line would be worth 12 feet.

Any portion of S R may be taken for the radial distance, provided the divisions of the ground line be valued by the same scale.

A USEFUL DISCOVERY IN SUGAR-MAKING.

An improvement has been made in the management of sugar plantations, in the discovery that bagasse (the sugar-cane after it is crushed) can be used for fuel. The transportation of the waste to the swamps, river or bayou, has

been a heavy task to the planters, occupying no inconsiderable time and labor. The steam to drive the sugar engine is now generated by burning bagasse.

HOW TO TOAST BREAD.

CHESTNUT brown will be far too deep a color for good toast; the nearer you can keep it to a straw color, the more wholesome it will be. If you would have a slice of bread so toasted as to be pleasant to the palate and wholesome to the stomach, never let one particle of the surface be charred. To effect this is very obvious. It consists in keeping the bread at the proper distance from the fire, and exposing it to a proper heat for a due length of time. By this means the whole of the water may be evaporated out of it, and it may be changed from dough, which has always a tendency to undergo acetous fermentation, whether in the stomach or out of it, to the pure farina wheat, which is in itself one of the most wholesome species of food, not only for the strong and healthy, but for the delicate and diseased. As it is turned to farina, it is disintegrated, the tough and gluey nature is gone, every part can be penetrated, it is equally warm all over, and not so hot as to turn the butter into oil, which, even in the case of the best butter, is invariably turning a wholesome substance into a poison. The properly toasted slice of bread absorbs the butter, and the butter and farina are in a state of very minute division, the one serving to expose the other to the free action of the gastric fluid in the stomach; so that when a slice of toast is rightly prepared, there is not a lighter article in the whole vocabulary of cookery.—*Household Almanac for* 1853.

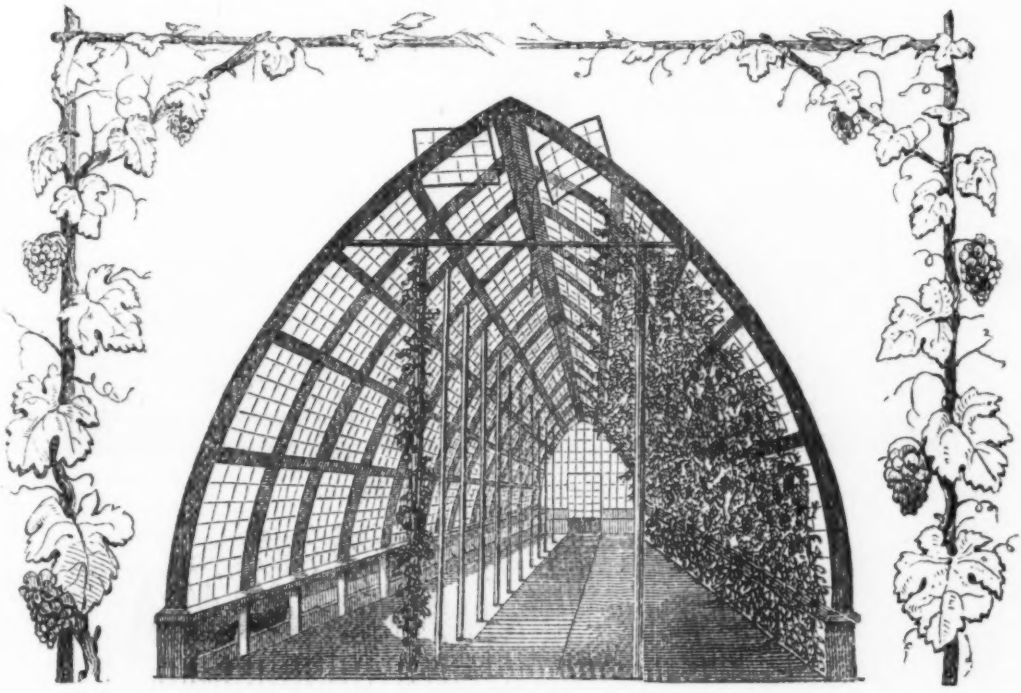
WE differ entirely from the no doubt learned editor of the *Household Almanac*, above quoted, and not in one respect, but in several.

Brown color, in itself, will not pretend to be a more wholesome color than a more sooty shade; and the latter is no doubt condemned by our author, not because it is black, but because it is charcoal. Now, although carbon in the lungs is a deadly substance, in the stomach it is quite wholesome. Its effects are antiseptic, decidedly and uniformly. All standard works on physiology agree in this.

Again; we do not wish our toast to be deprived of all its moisture. If it were, we should throw it away with other offal. We would retain all the moisture that can be retained; and we have yet to learn any reason why we should not gratify our palate by so doing.

Thirdly; we doubt whether it is practicable to have warm toast by any other course of procedure; and even with this, our toast is often so cooled ere we are ready to use it, that we are disposed to commit it a second time to the action of the fire, and might do so, but for the fact that by so doing, "the whole of the water may be evaporated out of it," and we be doomed to eat a mere dry chip. With all the moisture that can be preserved in it, our bread will absorb quite as much butter as we wish it to, and our "gastric juice," to our knowledge, makes no complaint.

It is a curious statement for a professed chemist to make, that by ridding bread of its water, the gluten and other constituents are all turned into farina. We should like to read a few chapters of our said editor's chemistry, and be allowed a few questions for explanation. This change would be quite as marvellous as that other change which some contend is witnessed, or may be witnessed any day of the year, of converting wheat into grass. We advise our friend to secure letters-patent, and without question he will find no rival claimant for the honor of his discovery.



GRAPE CULTURE.

WHAT is more delicious than a good grape? It has ever been deservedly regarded as one of the most desirable of fruits. Some few of the hardy kinds have been grown quite extensively in New-England and other Northern States. But success has attended these efforts within very narrow limits, so far as varieties are concerned. Perhaps the Isabella has given the most general satisfaction. We refer, of course, to the efforts of those whose vines were unprotected from the natural climate, except perhaps a slight covering in the winter.

Among our new books we have noticed, as our readers may observe, a new treatise of a practical sort, by Mr. Chorlton, which gives us plain and available directions for the culture of more desirable varieties under glass, though without heat. A large proportion of the failures met with in the cultivation of this fruit, the author referred to ascribes to the great and frequent changes to which the vine is exposed in our climate, both touching heat and moisture, by which a fungous growth is produced, fatal to the production of good fruit.

The engraving at the head of this article is presented to our readers through the courtesy of Mr. Chorlton, and of his publisher, Mr. Riker. It is a view of the cold grapery of Mr. Green, on Staten Island, under which Mr. Chorlton has grown the finest of grapes. It is simple in its construction, and by no means costly. "Good and suitable houses can be erected at from $8 to $12 per running foot, on the length of the house, all conveniences included." Nor is the cultivation expensive. Our author also assures us that "the skill is soon acquired." He also adds, "no fruit-bearing plant will give greater satisfaction, if attended to, and nothing *horticultural* will continue to prosper without it."

Different opinions are entertained in respect to the best shape and position

of a grape-house. Of a variety of forms, each has its advocate. In this, as in some other things, while we are less competent to judge than are many of the disputants, we think we can see a propriety in the opinion, that different shapes are preferable in different localities, according to the power of the sun and atmosphere, as exhibited in the spot in question.

Fig. 1.

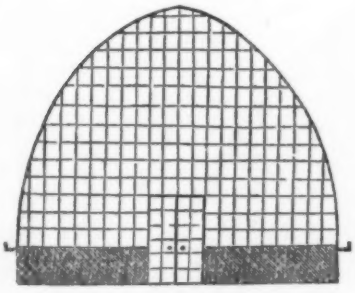


Fig. 2.

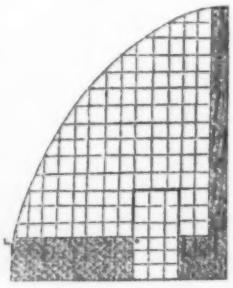


Fig. 3.

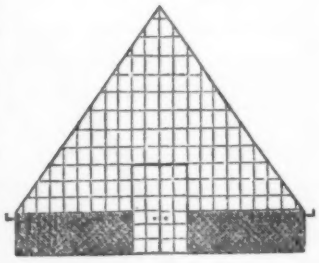


Fig. 4.

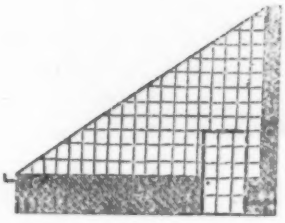
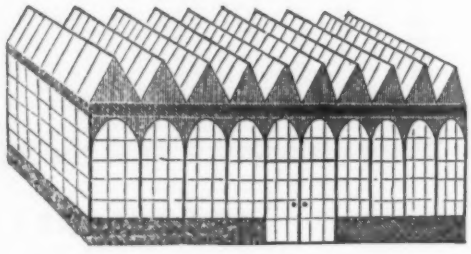


Fig. 5.



Figures 1, 2, 3, 4, and 5, are representations of the forms more generally recommended. They differ, as is obvious by inspection, in presenting either a double or single pitch, and a curve or straight line; and, as Mr. Chorlton informs us, "latterly a new notion has sprung up, and we find the ridge and furrow-formed roof, figure 5, is becoming the order of the day."

We readily perceive that this form gives an equal extent of surface exposed to the rays of the sun, with less elevation of the structure than any other of the forms presented. As a matter of economy in building, this may be of importance. And again, if the structure is built with close walls on the sides, or on the northern side, as they should be when early forcing is desirable, "the lean-to forms are the most economical."

The form is not regarded by our author so important as "the having it so constructed as to shut up tight in case of an emergency."

As to position, the ends ought always to face north and south, or as nearly so as possible.

The following kinds are considered, in this treatise, as the best and most suitable for the cold grapery, and their time of ripening in New-York:

Black Hamburgh, last week in August; Victoria Hamburgh, last week in August; Wilmott's Hamburgh, first week in September; Chasselas Fontainbleau, middle of August; Chasselas Rose, second week in August; Malvasia, first week in August; Muscat Blanc Hatif, first week in August; Purple Damask, last of September; West's St. Peter's, first week in October; Zinfindal, middle of August; Grizzly Frontignan, middle of August; White Frontignan, middle of August; Black Frontignan, middle of August; Decon's Superb, last week in August; Reine de Nice, first of October; White Nice, early in October; Syrian, last week in September; Xeres, last of August;

Gromier du Cantal, middle of August; Black Prince, first week in September; De la Palestine, last week in September; Dutch Sweetwater, last week in July; Scharges Henling and Muscat of Alexandria, beginning of September.

For ourself, we would be content with a supply of the Hamburghs. We have tasted none that, on the whole, suit us so well.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

AMERICAN MANUFACTURES.

THE spirit of improvement is indeed abroad upon the earth. Every day gives birth to some new invention, the application of some new principle to be established, or the new application of what was before known; and the facility and zeal with which these improvements are carried into effect are no less honorable to the intelligence and patriotism of the friends of domestic improvements, than promotive of the best interests of our growing and happy republic. The encouragement of home manufactures is strenuously urged by the first law of nations. It is the vital spark of a country like ours in its youth. On this are suspended the happiness and prosperity of the people; and in the same ratio as manufacturers and mechanics are encouraged, the interests of the whole community must advance. This policy strengthens the bond of union among the people, by associating different sections of the country through the intercourse of trade, and rendering reciprocally the interests of one subservient to and dependent on those of another. It augments the national resources, and regulates the condition of society, by retaining and circulating the specie which is now annually exported and expended for foreign manufactures. Every cargo of such draws its value in *specie* from the country; consequently, the circulating medium is retrenched, money becomes scarce, and the attending evils fall heavily on the poorer classes of society. On the contrary, let our own manufacturers be encouraged, and the money which is sent out of the country will circulate through different channels equally among all grades of the community; and the want of it, comparatively, will scarcely be known. There are no mechanics more ingenious or industrious than our own, and our country is capable of supplying the material for the manufacture of stuffs of every variety. The silk-worm is a native of America—cotton also, and is one of the greatest commodities of exportation. Vast shipments are sent to England—it is there manufactured, and again sent back to us! The manufactured cottons of England are not to be compared to those of the United States. Why then do we pay duties, freight, charges, and foreign manufacturers, for an article which we have of a better quality at our own hands? Certainly we are not desirous of purchasing the favors of any foreign nation at the sacrifice of our own interests. The workshops of Great Britain can supply few valuable additions to the ingenuity, enterprise, and skill of our own countrymen. Whatever is worthy of imitation is already known in the United States, and subsequent improvements are much more likely to spring up among what Cobbett denominated "a thinking people," than among nations willing to hazard few experiments, and wedded to the prejudices of their forefathers. What then is necessary to render us the greatest manufacturers on the globe, but a will and determination to become such? Nature has provided ample means, and a knowledge

of the use of them exists in ourselves. It may be said that we are in our infancy; that the bud of our country is just expanding. It is true we are young, but strong, vigorous, and needing only a *stimulus* to elicit those powers which, sooner or later, in the natural course of things, are to make us the rival of all Europe in the perfection of manufacturing and mechanic arts. England, by her internal improvements, inventions, and cultivation of the sciences, has risen to the highest pinnacle of fame and power. She has become the mart of the whole civilized world, and commands the respect and admiration of all. What may not America, by a wise policy, one day become? She has England for an example; has seen her errors, and can profit by them. She has no occasion for an expensive standing army and navy; no discontented neighbors to quarrel with; no nobles (except of her own creating) to support in luxury and idleness. Every thing moves along smoothly, in truly republican simplicity and economy. Her natural advantages are superior. She has an immense territory, and an industrious and increasing population, inured to labor, and having the best interests of their country dearest at heart. J. S. G.

Media, Pa., March, 1853.

THE LAPLANDERS.

The inhabitants of Lapland are of Norwegian, Russian and Swedish descent. Their language is similar to that of the French, from whom they are originally an offshoot. The Lapps in general are of middle stature. They have long heads, short necks, small brown-red eyes, owing to the constant smoke in their huts, high cheek bones, thin beards and large hands. Those of Norway are distinguished from the Russian Lapps by the blackness, luxuriance and gloss of their hair; the more northern portion of the races are somewhat larger, more muscular, and of a lighter complexion than the rest. Those of Sweden and Norway are, to some extent, more cultivated, enterprising and industrious than those of Russia, and make light of the greatest privations and hardships. The richest of the latter have not more than 800 reindeer, while the former possess from 2000 to 3000. In Sweden and Norway, whoever owns from 400 to 500 passes for a man in moderate circumstances; with 200 a small family with proper prudence can live without suffering from want, but less than this number plunges a family into all the troubles of poverty. Whoever has not more than fifty, adds his to those of some rich man, and becomes his servant—almost his slave; and is bound in the proper season to follow him to the hunting or fishing-grounds.

Fish, game, and the flesh of the reindeer are the usual food of the Lapps. Bread they never eat, though of the rye meal, which they procure in Kola, or of the fishermen in barter for the products of their reindeer herds, they make a sort of flat or pan-cakes, mingling the meal with the pounded bark of trees. For this purpose the meal is first soaked in cold water, and the cakes baked upon a hot iron. They are eaten with butter or codfish oil, which is esteemed a great luxury. The mingling of the bark with the meal is not done merely for the sake of economy, the Lapps considering it an excellent anti-scorbutic. They are very fond of salt, and eat nothing uncooked. Their cookery is all done in untinned copper vessels, perhaps because in all Lapland there are no pewterers; more probably, however, it is a long-descended custom, since in all Northern Asia the use of copper was formerly universal, and the art of overlaying that metal could hardly be known to the rude inhabitants. Never-

theless, cases of poisoning from the copper never occur, being rendered impossible by the perfect cleanliness of the copper vessels, which after every meal are scoured with sand till they shine like mirrors. Besides, after the food is sufficiently cooked, it is immediately poured into wooden vessels of home manufacture.

The Norwegian and Swedish Lapps make cheese of reindeer milk, and carefully save for use all the whey.

They milk their animals summer and winter, and freeze the milk which is set apart for cheese. The women consider this a great luxury. It is remarkable for its pleasant odor, and has a ready sale in Norway at a rather high price. The Russian Lapps have no idea of making cheese from their reindeer milk, although the manufacture, beyond a doubt, would be of great advantage to them. This milk is distinguished for its excellent flavor; in color and consistency it is like thick cream from the milk of cows, and is remarkably nourishing.

THE MAGIC OF CHEMISTRY.

CHEMISTRY is one of the most attractive sciences. From the beginning to the end, the student is surprised and delighted with the developments of the exact discrimination, as well as the power and capacity which are displayed in various forms of chemical action. Dissolve two substances in the same fluid, and then by evaporation, or otherwise, cause them to reässume a solid form, and each particle will unite with its own kind, to the entire exclusion of all others. Thus, if sulphate of copper and carbonate of soda are dissolved in boiling water, and then the water is evaporated, each salt will be re-formed as before. This phenomenon is the result of one of the first principles of the science, and as such is passed over without thought; but it is a wonderful phenomenon, and made of no account only by the fact that it is so common and so familiar.

It is by the action of this same principle, "elective affinity," by which we produce the curious experiments alluded to in a previous number, with SYMPATHETIC INKS. By means of these, we may carry on a correspondence which is beyond the discovery of all not in the secret. With one class of these inks the writing becomes visible only when moistened with a particular solution. Thus, if we write to you with a solution of sulphate of iron, the letters are invisible. On the receipt of our letter you rub over the sheet a feather or sponge, wet with solution of nut-galls, and the letters burst forth into sensible being at once, and are permanent

2. If we write with a solution of sugar of lead, and you moisten with a sponge or pencil dipped in water impregnated with sulphuretted hydrogen, the letters will appear with metallic brilliancy.

3. If we write with a weak solution of sulphate of copper, and you apply ammonia, the letters assume a beautiful blue. When the ammonia evaporates, as it does on exposure to the sun or fire, the writing disappears, but may be revived again as before.

4. If you write with oil of vitriol very much diluted, so as to prevent its destroying the paper, the manuscript will be invisible except when held to the fire, when the letters will appear black.

5. Write with cobalt dissolved in dilute muriatic acid: the letters will be invisible when cold, but when warmed they will appear a bluish green.

We are almost sure that our secrets thus written will not be brought to the

knowledge of a stranger, because he does not know the solution which was used in writing, and therefore knows not what to apply to bring out the letters.

Other forms of elective affinity produce equally novel results. Thus, two invisible gases, when combined, form sometimes a *visible solid*. Muriatic acid and ammonia are examples, also ammonia and carbonic acid.

On the other hand, if a solution of sulphate of soda be mixed with a solution of muriate of lime, the whole becomes solid.

Some gases when united form liquids, as oxygen and hydogen, which unite and form water. Some solids, when combined, form liquids. Nitrate of ammonia and sulphate of soda, when rubbed together in equal proportions in a mortar, become fluid. Acetate of lead and sulphate of zinc, in equal proportions, rubbed in a mortar, produce a fluid; and so will acetate of lead and Glauber's salts. The union of other substances produces a wonderful change of temperature. Sulphuric acid poured into water will so increase the temperature as to make it uncomfortable to hold the vessel containing it. If one part of ice is dropped into four parts of sulphuric acid cooled to the freezing-point, 32°, the mass will suddenly rise to the boiling-point.

Certain other mixtures produce an intense cold, and are called FREEZING MIXTURES. Among these are the following: To 32 drams of water add 11 of muriate of ammonia, 10 of nitrate of potash, and 16 of sulphate of soda, all finely powdered, and immerse your thermometer and note the result. If equal weights of muriate of lime finely powdered, and fresh-fallen snow are mixed, a similar result is produced: 13 lbs. of each have frozen 56 lbs. of quicksilver into a solid mass.

Sometimes a change of color is produced by similar means. Thus, dissolve copper in sulphuric acid, the solution is blue. Dilute one part of nitric acid with five or six parts of water, and throw in some copper filings. After a few moments, if you pour off this colorless fluid and add a little liquid ammonia, the mass will become blue.

By similar processes odorous substances become inodorous, and the reverse; and other changes equally remarkable are as familiar to the chemist as the alphabet of his native tongue. But the most astonishing exhibitions are witnessed, we think, in combustion. A great variety of experiments come under this title, presenting very dissimilar appearances. The comparatively slow process of fermentation by which the interior of your compost-heap is made hot, is one form of combustion. So is the glow-worm light of phosphorus exposed to the ordinary temperature of the atmosphere.

Other exhibitions in this department present an almost infinite variety of form and condition. From the dim light but powerful heat of burning hydrogen or alcohol, to the insufferable light and heat of burning iron under the compound blowpipe; from the bright light but scarcely perceptible heat of phosphoric oil (with which boys sometimes *light up their own hands and faces*) to the powerful action of that same substance, phosphorus, when immersed in oxygen gas, we have a series of developments as various in appearance as they are wonderful. All these phenomena differ only in their conditions, and not in their essential characteristics.

Can you really believe that the heat (we use the word in its popular sense) by which your house is warmed is actually *in the coal or the wood* while it is piled up in your cellar or outhouse? Yet so it is. Were its latent heat called into a sensible state where it lies, your buildings would *catch the infection*, and all consume together. Why does not the fuel burn in the wood-pile as it does on the hearth? Something sets it on fire! What *is* that

"something?" Is any thing added to the wood not in contact with it before? Whence comes the heat of the mixture of sulphuric acid and ice, before named? Is that *set on fire* by some other burning body? How does phosphorus get on fire, when left exposed on your table? These processes are alike wonderful. The phenomena exhibited by setting free this latent heat—the heat not cognizable by the senses, not even by the nicest instruments at a previous moment—are utterly astonishing. Throw a little phosphuret of lime into a vessel of water, and it takes fire on the surface. Throw a little potassium into water, and it burns rapidly *under water*. The water sets it on fire.

Were all the latent heat which now pervades the substance of the earth suddenly made free—as it might be by mere chemical action, without the application of any foreign burning body—the whole globe, with all its mountains of rock, its iron and other metals, and its mighty seas, would be consumed.

We do not undertake to explain the phenomena we have described, but only suggest them as incentives to lovers of the marvellous to examine the subject in a systematic, scientific manner. The merely curious mind will find more to feed upon in this department of natural wonders, than in all the fictitious stories which the press has ever issued. "Truth is more wonderful than fiction."

VALUE OF NIGHT-SOIL.

At the Massachusetts Legislative Agricultural Meeting, recently, Mr. Simeon Brown, of the *New-England Farmer*, in his remarks stated, that according to Mr. Robert L. Pell, of Ulster county, the nitrogen contained in the excretiæ of one person would grow, in combination with the aid of the ammonia, phosphates and sulphates obtained from the atmosphere, 800 lbs. of wheat per year, at which rate the population of Boston (150,000) might furnish sufficient to raise 120,000,000 pounds of wheat yearly. Add to this a small quantity of ashes and bone-dust, and with the natural resources of the farm we could bring up our lands to an amazing degree of fertility.

The solid and liquid manuring substances produced in factories of various kinds in our cities, with the sewerage, &c., is equal to one ton for each inhabitant. Allowing the same calculation for Boston, it would give 150,000 tons per annum. In addition to this, 150,000 tons of street dirt, ashes, &c., might be saved every year, the whole furnishing valuable fertilizing matter worth at least $150,000. Mr. Pell suggested the erection of reservoirs, with buildings over them, at the terminations of the sewers, for the purpose of collecting the rising gases, and crystallizing them by chemical process for agricultural purposes.

We are surprised that the enterprising farmers in the neighborhood of our large cities do not bestir themselves to secure the benefit of this immense quantity of fertilizing matter. Our cities often would be glad to give it away, although, according to our notion, it ought to be sold at auction every year, and become a source of profit. We know of at least one city into which immense wagons are driven in in the evening, and after being filled, are driven home, and the valuable offal of a city of some 40,000 inhabitants is poured upon the land, and is made to produce rich crops.

What an immense amount is lost in the city of New-York every year!

Even now, in some of the more sunken parts of the city, as we have had occasion to notice within a day or two, the deep mire of the gutters begins to send up its strong odor, as powerful to fertilize when buried in the soil, as to kill where it now lies by the consent of our city government. If they are no purer in their morals than in their official habits, we would not "sit in their seats," nor receive their "reward," for all the harvests of grain ever garnered.

Why may not some plan be adopted in all our cities, for turning these various kinds of offal to some good account?

DRAINING, WHEN USEFUL.

"*My land don't need draining!*" is frequently the stout assertion of the owner of light loamy soils, on the surface of which water does not stand a day, except in early spring. "How can I know whether draining will do my fields any good?" is the more doubtful inquiry of others who have sometimes seen its beneficial effects. We believe, says the *Albany Cultivator*, as a general rule, every acre of ground should be thoroughly and evenly underdrained, wherever it becomes necessary to dig a drain to a cellar; but where the subsoil is so porous that a cellar is dry without an artifical outlet for the water, nothing more is needed for such land. Dig a pit any where, three feet deep, and if water remains in it during the usual period of ploughing, planting or cultivating, then, most plainly, that land needs the benefit of underground channels. Some of our readers will recollect the statement of T. G. Yeomans, in the last volume of *New-York Agricultural Transactions*, who regularly drained an apparently high and dry field of light loamy soil, which his neighbors positively assured him needed nothing of the kind; but whom he convinced by showing the large stream which afterwards rushed out of his main trunk. F. L. Olmsted, in his *Walks and Talks in England*, mentions the case of a gentleman who drained thoroughly and expensively a piece of high land. All thought him crazy—"the hills were too dry already,"—he was throwing away his money. But he patiently awaited the result, which was, that the increased rental soon repaid the outlay, and his land was tripled in value.

FLAX CULTURE IN INDIANA.

Mr. R. T. Brown, of Crawfordsville, in a communication to Gov. Wright, President of the Indiana State Board of Agriculture, says:

"I send you enclosed a few samples of 'Flax Cotton,' presented to me by the Hon. H. L. Ellsworth, of Lafayette. Mr. Ellsworth has secured the machinery necessary for the manufacture of the cotton, and will have it in operation early in the season. He has on hand the 'stem' grown on 120 acres last season, which, from experiments already made, will, he supposes, yield about 300 pounds per acre of 'cotton' similar to No. 2 of the enclosed specimens. The expense of reducing the fibre to this state, after the stem is produced, is about 2 cents per pound, which at the usual price of cotton (10 cents) will leave 8 cents per pound, or $24 per acre, for the farmer who produces it. To this must be added the value of the seed, which will range from $6 to $8 per acre, giving a final result of $30 at least for each acre. This is Mr. Ellsworth's calculation: it may be too high; but if we allow for the

magnifying effects of his zeal one third or even one half, still flax will be as profitable a crop in proportion to the amount of labor required to produce it, as any of the staples of the country.

"Mr. E.'s method of flax farming is to break his ground in the fall, and secure it from being trodden in the winter. Between the middle and last of April he harrows it well, sows his seed, harrows in, and passes the roller over it, leaving a level surface. He harvests it with a horse-power reaper, cutting about two inches from the ground. As soon as it is dry, the seed is threshed off, (for which operation we yet need an appropriate machine,) and the 'stem' baled for transportation to the factory. The amount of labor is about the same as that required for a wheat crop."

THE HORSE.—ORGANS OF RESPIRATION, DISEASES, &c.

We take from the *Traveller* the following report of another of the lectures of Mr. Slade on the anatomy and diseases of the horse:

The lecturer opened with an account of the pleura, the serous membrane which envelopes all the vital organs, and furnishes a liquid which lubricates the parts. This pleura sometimes becomes diseased, and this fluid becomes abundant and flows from the nostrils.

The lungs are two large, soft, spongy elastic bodies, divided by the pleura, and separating the chest into two distinct parts. The lungs are divided into lobes by fissures. The right lung has three lobes; the left but two. In the young horse the lungs are of a pink color, which color grows darker as the horse grows older, until in old age it is quite gray. The trachea, when it devides into two parts, divides again into eight passages, and then into an infinite number of air-passages, terminating in air-cells, which ramify in arteries.

The heart is separated by the pleura, and has a membranous bag called pericardium, which completely surrounds it. It is of a conical form, and is composed of four cavities. The two upper are called the auricles; the two lower, the ventricles, which occupy the great bulk of the heart. The left side is engaged in the general arterial circulation of the body; the right in the pulmonary circulation. The left is much thicker than the right, its work requiring much more strength than the other side. Starting from the left ventricle, the blood fitted for the nutrition of the body is forced through the arteries to all parts of the body, becomes altered, and then is returned by capillary vessels to the veins, commencing in small ramifications, and increasing until it reaches the right auricle, and then it is sent to the right ventricle, and then by pulmonary arteries to the lungs. In the air-cells of the lungs it comes in contact with the air, and is then carried through the pulmonary veins to the left auricle, and then to the left ventricle, and is there ready to be sent again through the body.

The first great arterial canal is called the aorta, which divides into two branches, the anterior and the posterior. The anterior supplies the head and extremities—the posterior, the abdomen.

The arteries are elastic tubes, composed of three coats. The veterinary practitioner must understand well the pulse of the horse. It should beat from 36 to 42. The pulse of the ox is 35 to 40. The dog, 90 to 100. The cat, 100 to 125.

In the horse the quick pulse indicates fever; a slow one shows the contrary,

and is a sign of diseases of the brain, like blind staggers. A very strong pulse shows that the horse needs bleeding. A weak pulse requires tonics.

The delicate organs of respiration and circulation are subject to many diseases. But before considering the diseases, the lecturer defined inflammation as an altered nutriment, with increased sensibility, giving rise to heat, pain and swelling.

The seat of disease in the chest may be detected by applying the ear to the chest, or by striking it with the fist. In a young, healthy horse, a murmur is heard in the chest.

The respirations of the horse are six per minute, against sixteen of the man.

The common catarrh is a common cold caused by exposure. There are watery discharges from the nose, which soon become thicker; a cough is also observed. The influenza attacks horses early in the spring, after being shut up in warm stables. It is marked by great debility, and is epidemic, affecting the respiratory organs, and causing a sore throat and cough. The eyes become nearly closed, and are filled with tears. The animal becomes very much debilitated. Bleeding may be practised if the pulse is full, and great care should be taken not to excite the digestive organs; a vapor bath may be applied, and the horse should be well clothed. Sometimes the disease is very severe and fatal, and sometimes its effects are very slight.

Bronchitis is not a primary disease. The lungs become affected, and give rise to a whirring sound. The pulse is rapid, and the horse is languid, and does not like to move. The disease usually ends in inflammation of the lungs. The lecturer then spoke of inflammation of the substance of the lungs. The delicate air-cells and the ramifying arteries upon them are the seats of many diseases. Lung fever is ushered in by a fever heat, followed by a chill which seems like a death-like cold. The pulse is obscure, the heart labors hard, the vessels of the lungs are enveloped in blood, and sometimes ruptured. Bleeding is therefore beneficial. The horse will not lie down, but strains every muscle to breathe. He will not move at all, and stands until he falls exhausted. The extremities are cold. The animal often looks at his sides, and his head is protruded.

As the disease increases, the horse finds yet more difficulty in breathing, and finally suffocates. When the horse is attacked with the lung fever, the ear detects in the chest a crackling noise, as though salt had been thrown into fire. This is a sure sign of the disease. The horse should be bled in large streams, should receive extensive blistering on the breast, and should be well covered. The bowels should be gently moved by injections of soap and water. There is little hope of a horse who has a settled lung fever, and sudden inflammation of the lungs often leaves a portion of the lungs diseased. The horse suffers then with thick wind.

The broken-winded horse breathes hard and quick in drawing in the air, but when respiring there seem to be slight spasms. Broken wind is caused by a cough, or by rapid galloping after a full meal. It is attended by a short cough, and cannot be cured. It may be palliated by nutritious food which will occupy little space in the stomach.

The pleurisy is an inflammation of the pleura, and is caused by overexertion, cold, change, or accident, as the breaking of the ribs. The first symptoms are a shivering, followed by heat.

The side is very tender when touched, and the animal will shiver after being touched, lest the operation be repeated. The pulse is rapid, but full and strong. The limbs are never very cold. In pleurisy we hear nothing at first but a fainter murmur than when the horse is well; there is also sometimes

a rubbing sound. The horse dies finally by the flowing of liquid into the chest. As pleurisy increases, the symptoms increase, and finally the horse falls. There is dropsical swelling in the abdomen. The lungs are not a fourth of their usual size, and are invested with water. The lungs at death are collapsed in this watery liquid. Bleeding should be early and powerful: blistering, warm and comfortable clothing, and tonics, should be the treatment. Sometimes the tapping of the chest is performed.

AGRICULTURAL SOCIETIES.

New-York State.—Proceedings of the Executive Committee, March 3: Present, J. Delafield, E. P. Prentice, Geo. Vail, J. Beekman Findlay, Wm. Kelly, B. B. Kirtland, Charles Morrell, B. P. Johnson.

Grasses.—The Secretary was directed to procure ten bushels of each variety of grass-seeds, which were recommended by the committee at a former meeting for trial. It is so late in the season that the seeds will not be obtained in time for spring sowing, but they will be procured in time for another season; and gentlemen desirous of experimenting with these seeds are requested to forward their names to the Secretary at as early a day as practicable. The annexed is the resolution of the Society, and the varieties of grasses selected for trial:

Mr. Kelly, from the committee on the subject of procuring a variety of grass-seeds for cultivation in this State, reported, recommending that "a system of trial and comparison of the grasses enumerated be made by farmers in various parts of the State, whose interest in the cause will induce them to undertake and carefully carry out the experiment, by sowing not less than one eighth of an acre of each sort above named; and that the Corresponding Secretary be directed to procure, by importation or purchase, an ample supply of seeds, and furnish them in his discretion to such persons as shall agree to prosecute the experiments in conformity with directions to be given, and to report the result to the Society, in such form as may be prescribed."

The premium list was taken up and completed, and ordered published.

New-York State.—The Executive Committee of the New-York State Agricultural Society have adopted the following regulations in regard to fine-wooled sheep, (Saxony, Merino, and crosses between these breeds,) in the hope that greater justice will be done to exhibitors than heretofore, and the true merits of the sheep exhibited will be more satisfactorily ascertained:

Requirements.—The number of ewes to be exhibited for premium to be five, and they must each have suckled a lamb the present season.

1. The fleeces must be sent to the Secretary at the Agricultural Rooms, immediately after shearing, with the private mark of the owner, and a mark placed upon each sheep corresponding to that sent to the Secretary, and a lock of wool left on each sheep. The Secretary to record these marks in a book to be provided for the purpose, and to be shown to no person until the fleeces are produced at the Fair.

2. A statement must also be sent containing the age of each sheep—how the sheep have been kept—the date when shorn, and that the fleece was of but one year's growth; the length of time after washing when the fleece was shorn—and that each sheep had suckled a lamb up to the time of shearing.

3. The Middlesex Mills' standard for sorting the fleece to be adopted, and

the Secretary is to send each fleece to the assorter, marked by him, to be weighed, examined, and noted as to its various qualities.

4. The fleece to be carefully cleansed, dried and weighed, and each fleece to be put up separate, and returned to the Secretary with the sorter's report.

5. The sheep to be exhibited at the Fair, and to be examined by the judges.

6. After the judges have examined the sheep, the fleeces are to be submitted to them, with the report of the sorter, and with the private marks of the Secretary, when the judges will make their awards.

Each exhibitor must present an affidavit to the Secretary, for the use of the judges, that the sheep exhibited are the same that the fleeces were taken from, which were sent to the Secretary for being assorted and examined, and that the statement furnished by him to the Secretary is in all respects correct.

Bucks.—The same rules as to shearing, marking, and statements as to age, feeding, &c., will be required to be verified in like manner.

PLYMOUTH COUNTY AGRICULTURAL SOCIETY.

ROOT CROPS.

Benjamin Hobart's Statement.

PLOUGHED one half acre of land, and subsoiled it the first week in May, of a good loamy soil, which was in corn last year from greensward. Spread on the same thirteen loads, of forty cubic feet to a load, of good compost manure, principally from the horse stable. Divided the half acre into two quarters, and planted one quarter to beets on the 24th of May, and one quarter to carrots on the 28th. One half was mangel wurtzel, and the other, white French sugar beets, and long red blood beets. Hoed and weeded them on the 18th and 19th of June, and again in July, and thinned them out. The result, by the measurement of the Supervisor, Horace Collamore, Esq., was, of the beets, on the quarter of an acre, a little over 257 bushels of 56 pounds to the bushel, being over 1028 bushels to the acre.

Seth Sprague's Statement.

The quarter of an acre of land entered by me for premium for carrots, is a sandy loam; was in turnips last year, the crop of which was very small; having given it at that time an extra quantity of manure, and dressed it with ashes and bone dust. I put on, this spring, but few loads of compost manure of middling strength, ploughing and subsoiling it eighteen inches deep, the last week in April. The first week in May harrowed, and hand-raked the ground smooth; planted the orange variety with a seed-sower in rows, eighteen inches apart, thinning them to six inches apart in the rows. There were many small vacant spots in two thirds of the field, sowed with seed purchased in Boston; the other part, sowed with seed raised myself, came up very thick and even, and had a better growth than the others. They were hoed four times, and harvested the second week in November, previous to which the Supervisor measured one rod, gathered and weighed them, and made less than two hundred bushels. The spot was selected by myself, which I considered, at the time, would give less than an average, but not expecting to obtain the first premium. I felt indifferent as to the quantity reported. My men finished harvesting them a few days since, and they inform me that they had

a little over three hundred bushels, that they were very particular in weight and measure, and cannot be mistaken. The size and length of the carrots give evidence to the correctness of this report. This I believe is a larger yield than has been reported at any previous time. When this is exceeded, I will try again. I think I can raise four hundred bushels to the quarter of an acre.

Expense :

Ploughing, subsoiling, harrowing, raking, and sowing,	$2 50
Hoeing and thinning,	10 00
Harvesting,	7 00
	$19 50

The tops given to my cattle were worth as much as the compost put on.

Jonathan Copeland's Statement.

The quarter of an acre entered by me for premium on carrots was the same that I had carrots on last year. The middle of April we put on ten cart-loads of manure, and ploughed it in nine inches deep. The 20th of May, ploughed the ground again, harrowed, and brushed it, and commenced sowing by hand, in drills, eighteen inches apart : seed, orange variety. It took two men one day to sow them, and six days' work to weed and thin them out. My carrots are about as large at the top as they were last year, but not so long and heavy. I think the ground wants stirring with a subsoil plough.

ONIONS AND WINTER SQUASHES.

Abiel Bassett's Statement.

The quarter of an acre of land I entered for premium on onions is a light mould ; it was in onions last year. The 16th of April I put on ten cart-loads of stable manure, which was spread and well ploughed in ; the 21st I spread on forty bushels of dry ashes, and sowed the seed with a machine. I raised my own seed the year previous. The hoeing and weeding were done by odd jobs, which I estimated at about six days' work. October the 5th the land was surveyed, and the onions measured on one square rod, which produced 4¼ bushels, which would be 680 bushels to the acre. The certificate of the Surveyor I enclose in this communication.

I hereby certify that I have this day measured, for Dea. Abiel Bassett, one fourth of an acre of ground, on which he has raised onions the present season, and selected one square rod thereof, which I judged to produce an average of the whole, and measured therefrom four bushels and one peck.

ISAAC FOBES, *Surveyor.*

I hereby certify that I assisted in pulling and cutting off the tops of the abovesaid onions, and witnessed the measurement, which was as above stated.

WILLIAM H. LIVERMORE.

Bridgewater, October 5th, 1852.

Austin J. Robert's Statement.

I have raised this year, on one quarter of an acre of ground, 4942 pounds of squashes, or 2 tons 942 pounds, which is at the rate of 9 tons 1768 pounds per acre.

The sward was turned over on the 1st of May, the soil being a light gravelly loam. Holes two feet in diameter and one feet deep were dug, ten feet apart each way. To each hole three large shovelfuls of a prepared compost were thoroughly mixed with the earth taken out, and the holes refilled. About the middle of May, the seed was sown; the unnecessary plants were

pulled up, leaving only three of the thriftiest. When they were two inches high, two quarts of unleached ashes were strewed around each of the hills and slightly hoed in. Bugs by-and-by appeared, but were happily made sensible that a strong solution of quassia and tobacco rendered the vines unpalatable.

The variety raised was the custard squash, which I have cultivated for the last three years with satisfaction, and which has been improved by me in flavor and color, by crossing it with the marrow squash. It readily sells in large cities, at remunerating prices.

Nathan Whitman's Statement.

The land, one quarter of an acre, on which I raised my squashes, was, last season, planted to potatoes. I ploughed it deep, say seven inches, harrowed and rolled it, then furrowed it five feet apart one way, and put on six loads of good manure from barn cellar, and dropped it in the furrows, five feet apart. In August, went through with one furrow in each row, pulled out the weeds and thinned out the squashes, leaving three vines in each hill, half crooked necks and half marrowfats. Gathered from the same, 4523 pounds.

ESSEX COUNTY AGRICULTURAL TRANSACTIONS.

REPORT ON ROOT CROPS.

The Committee report, that there were statements sent them of two crops of onions, one crop of carrots, and one of potatoes; and they have awarded the premiums as follows:—

To Andrew Nichols, of Danvers, for his crop of onions, raised in Middleton, the premium of - - - - - - - - - -	$6 00
To John L. Hubbard, of Byfield, for his crop of onions, a gratuity of	4 00
To R. P. Waters, for his carrots, the premium of - - - - -	6 00
To Charles French, of Andover, for his potatoes, the premium of -	6 00

The statements were not received until November 16th, at which time the crops were harvested, except the carrot crop of Mr. Waters, so that your Committee did not have the pleasure of viewing them in the field; but as the statements are so particular and so well vouched, they had no misgivings about making the awards.

The statement of Mr. French, concise, but to the point, your Committee commend to the serious attention of all readers living in the neighborhood of worthless land. He has not only received a fair income from his ground the first year, but his land is now in fine order for any other crop he may wish to put upon it.

The Committee have, perhaps, rather exceeded their authority in awarding a gratuity to Mr. Hubbard, but they thought his experiment a very satisfactory one, and such an one as they did not consider advisable to let pass without "material aid" from the Society.

For the Committee, J. Kittredge.

Andrew Nichols's Statement.

The land on which this experiment was made is nearly level, one corner

being a little elevated, and sloping towards the centre of the lot. The subsoil is sand or loose gravel,—the soil a loamy mould, which, as analyzed by Dr. Dana in 1840, contains—soluble geine 4.56 per cent., insoluble ditto 3.50, sulphates 1.30, phosphates .84, granite sand 89.80. (See Society's Transactions, 1840.) On the larger portion of it onions had been cultivated for one or more years. On a small portion of it cabbages grew last year. About the middle of April the ground was ploughed seven inches deep, and manured with a compost formed by mixing twelve cart-loads of barn manure with fourteen of muck, of the same kind as that analyzed by Dana, (see Transactions, 1840,) and thoroughly harrowed, raked smooth, and one and three fourths pounds of seed sown thereon. They were weeded four times, twenty-four days' labor.

Soon after first weeding, one bushel of dry wood ashes was sown broadcast over the whole piece. After the second weeding, one bushel of plaster Paris was strewn over it in the same manner. After the third weeding, the western end of the piece, on a part of which cabbages grew last year, was less promising as to a crop than elsewhere. One peck of guano, mixed with one peck of plaster of Paris, was scattered over this part of the field, about one fourth of the whole. This apparently had the desired effect—gave the crop a luxuriant appearance, and at harvest the largest product.

Danvers, Nov. 6, 1852.

John L. Hubbard's Statement.

I herewith transmit a statement of the management of the crop of onions entered by me for premium. The land is a sandy loam, rather light on one side of the piece to a rather deep black soil on the other side, with a southern exposure, containing 86 rods. It has been used for an onion bed several years. The manure was partly barn-yard and partly slaughter-house manure; was not composted. One side of the lot was manured entirely with the slaughter-house manure, and on the other side the barn-yard manure was thought to be too scattering, and some small heaps of the slaughter-manure were put in to fill up. The manure was ploughed in in the spring. The ground was not harrowed, but it was brushed over, and then raked by hand. The seed was then sown. One pound of the common yellow onion seed was sown first on the lightest part of the land, where the barn-yard manure was put; then one pound of Danvers seed entirely on the slaughter-manure, and then the lot was finished with a mixed seed of Danvers and yellow onion seed.

The seed was sown the 5th of May. The product was 127 bbls. of Danvers, 125 of the common, and 47 of the mixed seed. Perhaps I ought to say that no account was made of the unripe and rotten onions, of which there were several bushels. The product was rather in favor of the mixed seed, but I attribute this to the land, as it was moister, and was not molested at all with the worms. The Danvers had the next best chance, and they were ripe some days sooner than the others. There were also taken onions for the use of two families during the summer, and 30 bunches were sold before harvesting. In regard to measure, I say that they were measured in a basket, and that of 100 baskets one basket was taken out, and the rest were taken to market and weighed, making 102 bushels and 18 pounds, 57½ pounds being a bushel. If the remainder, which were barrelled, overrun at the same rate, there would have been over 340 bushels.

EXPENSE OF CROP.

Four cords manure,		$16 00
Spreading manure and ploughing,		3 00
Fitting the land and sowing,		1 50
Weeding five times,		20 00
Harvesting, topping, &c.,		12 00
Hauling to market,		8 50
Interest on land,		3 00
		$64 00
Crop sold for		144 25
From which deduct cost of production,		64 00
Net profit,		$80 25

Byfield, Nov. 12th, 1852.

Richard P. Waters's Statement.

The crop of carrots which I entered for examination has now been harvested, and the result is as follows:—From 100 square poles of land I have taken 555 baskets of orange carrots, weighing, on an average, 56 lbs. per basket, amounting to 31,080 pounds of carrots, or at the rate of 20 tons per acre.

The mode of cultivation was as follows:—We manured the land with 18 ox-cart loads of barn-yard manure, two thirds of swamp muck, and one third pure stable manure, composted. This manure was spread, and the land ploughed 12 inches deep about the 20th of May. It was then raked with common hand-rakes, and the seed sown on the 28th of May—the rows 18 inches apart—with one pound of orange carrot seed. The piece was then hoed once and weeded by hand twice. The carrots were harvested on the first week of November, and the crop resulted as above stated. Perhaps it ought to be stated that I took a carrot crop from the same piece of land last year, and for which I received a premium. I shall continue the same crop on the same land another year. The soil is composed of dark and yellow loam, and was fenced off from an old pasture three years since.

EXPENSES OF CULTIVATION.

Interest on land,		$5 00
Six cords compost,		36 00
Spreading manure, ploughing, harrowing, raking, and sowing seed,		6 00
Seed,		1 60
Hoeing, weeding, and harvesting,		26 50
		$74 50

VALUE OF CARROTS.

Fifteen and a half tons, at $10,	$155 00	
Tops, as fodder for cows,	25 00	
		180 00
Net profit,		$105 50

In view of this result, I would ask what crop makes better returns than carrots well attended to?

Cherry Hill Farm, Beverly, Nov., 1852.

Charles French's Statement.

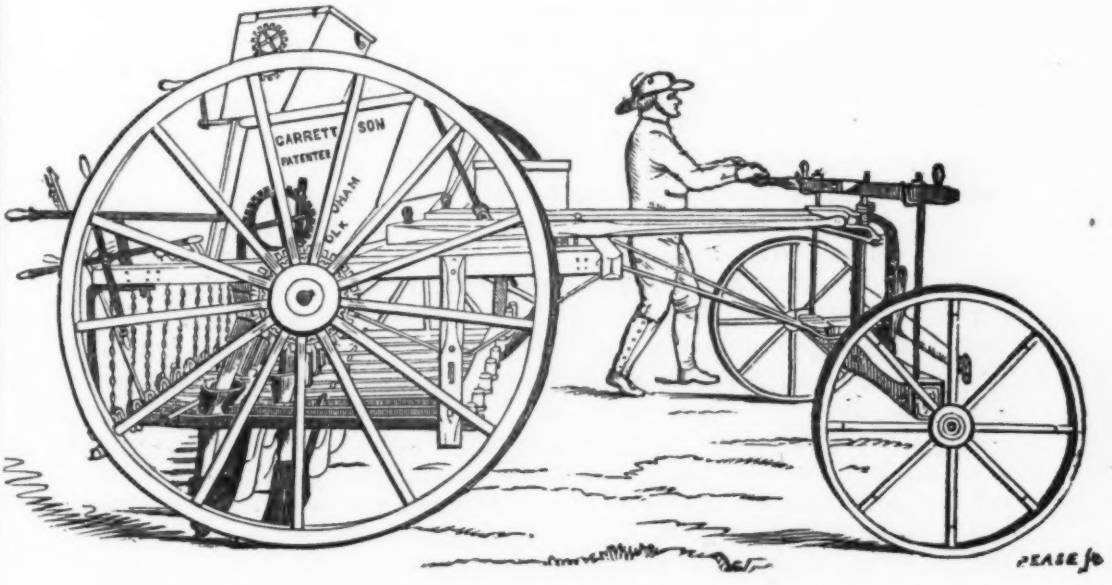
I offer one half of an acre of land, in potatoes, for a premium. The land a bog, in a wild state at commencement, and yielding nothing.

Cost of digging up with spade, - - - - - -	$6 00
" planting, - - - - - - - - -	13 00
" hoeing, - - - - - - - - - -	11 00
" seed, 6 bushels of black and chenango potatoes, (4 bushels black, 2 of chenangoes,) - -	4 67
Cost of manure, (stable manure and sand,) - -	15 60
" digging and housing potatoes, - - -	10 00
	$59 67

The product was—of black potatoes, - 117 bushels.
" of chenangoes, - 24 "

The chenangoes were dug early, before fully grown or matured.
Andover, October, 1852.

THE SUFFOLK DRILL.



Such is the name of the above machine. It has been awarded many prizes in England, and was fitted at the "World's Fair" with a steerage arrangement that renders its work very perfect. A swing steerage in front, guided by hand, enables the man to keep the rows perfectly parallel with the preceding course of the drill. This is done by the man's holding the steerage handle as it is shown in the annexed cut, and keeping the same fore wheel in the track of the former large one. This insures perfect regularity, and prepares the whole field, so that the horse-hoe can be used to great advantage and without injury to the grain. This arrangement could very easily be adapted to any of the other drills, and would greatly add to their usefulness.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

AMERICAN IRON.

MESSRS. EDITORS:—It is stated in the last number of the *Plough, Loom, and Anvil*, that American iron was superior to either the English, Scotch, or French, both in its strength and purity; two items of vast importance in the character of iron, and which ought to be known to all of the American people. Seeing this is the case, it is cheaper even at a higher price, and that too for every department of human enterprise, and especially for the railroad, navy, and all heavy work.

But what I wished to say, is this: It appears iron has greatly advanced. Now I wish to ask the cause of this. We were told that by reducing the Tariff, iron, among other things, would be cheaper. With this hope, we were willing to see the change so earnestly desired by some. That change has been affected. The Tariff has been lowered; but the desired result has not come to pass. Prices have not come down as we were assured they would. Neither have they stood still, but they have gone up, and are still going up. We have been disappointed—and have we not been deceived? We were grasping at lower prices—but we have reached higher. We were told we should pay less money—but we have to pay vastly more. We were encouraged to hope for great saving—but there is greater expenditure. We were continually told how cheaply we should purchase, but we are called to put our hand still deeper into our pockets than ever; and what makes all this so deplorable, is the fact, that we are compelled to go abroad; to carry our gold and silver to foreign countries; to encourage British monopolies; to sustain British tyranny: for it does not go into the poor man's pocket. Little good does it do him: but to swell the already overgrown fortunes of the oppressors of the poor do we send our money, and that too for an article greatly inferior to our own. We can obtain about one half of what we need at home; all the rest, the vast and ever-increasing amount, we must look to the foreign market for: to those markets to which we send our gold and silver, paying them an extravagant price: and not only so, we must pay just as high for the home article, for it is the foreign market which regulates the price of the whole quantity.

Now this is a plain case. It addresses itself to men of plain understanding, who have but little time and less inclination to mix in the strife of politics; and thus we submit the interest to others, believing what we were told of the great reduction of prices; and for this we have looked, but, as yet, in vain. We see things directly the reverse of what we were assured over and over again would be the result of a reduction of the Tariff. We are a matter-of-fact people. We may not reason so profoundly—but we can feel as keenly as others. All would have been active and prosperous where now we see deserted mills and empty houses, and men idle for the want of something to do. The demand might have increased a thousand-fold, and still the supply have kept pace. Thus there would have been a healthy, prosperous community, all busily engaged, each helping the other, instead of a swelled, bloated, and sickly monopoly, full of corruption and death, upon whom we are dependent for our supply, and of course, while they can monopolize, they will fix the prices. When the article must be had, extortion can be practised with impunity. But whose fault is all this? It is the fault of those who broke down our manufactories, closed our furnaces, and threw us out of work; who

forced us to compete with British monopolies. Our manufactories are closed, but we must have the articles, and they must supply us at their own price. We remember the storekeeper in the West who sold his goods "as cheap as possible." In a year or so, one store and another was opened, and he soon found that although goods had not fallen when he purchased, yet he could afford to sell some two or three hundred per cent. cheaper than before. And when money by millions is to be taken from our pockets and carried to distant countries, are we not bound to wake up and look about us, and demand an explanation also? And surely those who gave us such assurances are bound, in all honesty, to give us the explanation we seek—to tell us why so many fair promises have all been broken; or if they cannot, they should frankly say they were deceived. But I suppose we shall be assured it is what must be expected from the law of supply and demand, and that it cannot in the nature of things be otherwise.

Surely this is flying from the whole question, for we were assured in the most positive manner that *the prices should be down*, and that it was the Tariff that kept them up to such an oppressive height. The Tariff has been lowered, and prices are higher. Thus it appears that those who asked for the removal of a protective Tariff never had a thought that the law of supply and demand would make such a difference. They uniformly declared prices should be down, and not as they now are, higher. So something else must be the cause. Pray what is it? If you will permit us, we will say what we believe is the cause, and the reason why we think as we do upon this matter; and if we are wrong, we hope you will set us right upon this vastly important subject.

We think then that the disturbance of the Tariff has been the cause of all this rise, and not the law of supply and demand; for if home protection had been afforded, we could have met the increased demand with great ease. Thousands of furnaces now closed would have been in full blast. Tens of thousands of men now out of work would have been busily engaged in making iron.

That country storekeeper is a type of all mankind. Give any company the control of a business, and they will regulate their own prices. Look at the New-Jersey Railroad Company—they will charge you some three or four times as much for travelling as you would be charged at the South-west. Now the South-western men are as much disposed to get a good price for transportation as the New-Jersey Company. Where then is the difference? This—simply this: *competition*, and no *monopoly*.

But what has this to do with the price of iron? Much every way. By disturbing the Tariff, we have broken many of our companies who were engaged in the manufacture of iron. Mills and furnaces have been sold for one fifth of their original cost. They make no more iron. The article we must have, therefore we go abroad for it. The English manufacturers, finding we are in their power, like the Western merchant and the New-Jersey Railroad Company, soon find they can set their own prices, and up goes the article. The monopolies are in full blast, the demand is urgent, the price is raised again and again; and as we are in their power, the process goes on almost indefinitely, and now we cannot help ourselves. Having broken down our home manufacturers—deserted our friends—thrown ourselves in the arms of our enemies, we must abide our fate, until, by a judicious and permanent protection, we can secure our mills from such ruinous fluctuation. While there is capital enough and material enough, no men are willing to risk their all under such a fluctuating state of affairs. But let there once be a permanent state of things, and we will soon

see mills and furnaces every where spring up in full operation, and thousands of men engaged in working the raw material. Our resources will soon be developed, health and wealth flush every cheek, and prosperity bless every community. It has been said, Why not make the article as cheaply as the English manufacturers? We would make it cheaper than they now charge us, we would get it for less than we are now paying. But it must be remembered, that as soon we commence the operation, they would reduce the price so as to break all small capitalists, and by such a course drive them from the market. Then, the market cleared, the business in their hands, up would go the price to compensate themselves for the temporary loss sustained while breaking down others of less means. We have seen this same game played in the New-York line of steamboats running to Albany. Have they not often reduced the passage to a mere nothing, until all competition was destroyed? then, the whole business in their hands, they could fix their own prices, and the travelling public could do nothing but accept their terms. So is it with the capitalists of England. Give us a reasonable assurance of moderate protection for a few years, until we have overcome the difficulties of a new business, and we would ask no more; and unless this is granted, our iron, superior as it is to any in the world, must remain in the earth; and we of Virginia, with iron enough and coal enough to meet all demands, and people enough to make as much as could be required; with water-power in abundance and every advantage of central position, healthy climate, of mountain and dale, ocean and bay—yet with all these and a thousand other advantages, obvious to the observing eye, it would seem as if we were destined to sleep on, unwarned by the past, unshamed by the present, unalarmed for the future, while all our internal wealth is left to repose as nature gave it birth. Oh, it is enough to make one weep over the infatuation of our people, of our political leaders, to see how they leave Virginia, old Virginia, the mother of States, thus to be outstripped by her youthful but more enterprising children; thus to leave her waning in influence, waning in power, with comparatively little to cheer at present, and less in prospect, but the remembrance of her former glory; while her uncounted treasures are left—all buried, untouched, and dead. But at present, I say no more. If I am wrong, pray set me right, and I shall ever remain,

Most truly yours, ENOCH REED.

Locustville, Accomac County, Virginia, March 7th, 1853.

POULTRY MANURE.

THIS is the most valuable of the farm manures, and is entitled to great care in its collection and use. Beyond the amount of water it contains, it is as valuable as guano, and therefore should never be sold by practical farmers to morocco-dressers, at 25 cents per bushel. The poultry-house should be underlaid with charcoal-dust, when it can be procured, so as to receive the hen manure as fast as made. The surface of this charcoal-dust should occasionally be raked or removed off to one corner, with a portion of the dung. This may be continued until the manure is required for use, when it should be thoroughly mixed with ten times its bulk of soil before being applied to crops. Where charcoal-dust cannot be procured, well-decomposed swamp-muck, plaster of Paris, or even aluminous clay, may be frequently dusted over the floor of the poultry-house to be mixed with this manure. The object of all

this is to receive and retain the ammonia, so as to prevent its liberation from injuring the health of the inmates of the poultry-house. All animals, man included, suffer from breathing the effluvia arising from their excretia, and this is particularly true of the feathered tribes. Their natural habits in the wild state cause them to pass through the upper strata of the atmosphere, and with such velocity as to readily rid themselves of the noxious gases given off the surface of their bodies, and to be beyond any deleterious influence from the fumes of their excretiæ. We should, therefore, in the poultry-houses, make such arrangements as will prevent the poultry from inhaling these deleterious gases.—*Working Farmer.*

THE FLOWER-GARDEN.

EVERY BODY loves flowers, though few are willing to pay the price necessary to procure them in their most perfect forms; but wives and daughters, with few exceptions, have a greater or smaller portion of the garden devoted to this purpose, which they cultivate with due zeal and with very satisfactory results. We have often wondered why there were not small and cheap manuals, illustrating these, the plainer phases of floriculture, at the command even of the poor. Breck's Book of Flowers is the best within our knowledge, and is all and exactly what it professes to be; but there are thousands who need a little manual, not exceeding twenty-five cents' cost, that shall give a list of flowers of easy culture and a regular succession of bloom, from the time of the crocus to that of the latest aster, to say nothing of those that may be taken up and placed in pots to grace the windows of the winter parlor. We have done something of this in the issues of the past year, and wished to do much more. We now add a few suggestions:

1. *The time of planting.*—For annuals, and all delicate plants, an observation for years satisfies us that no better advice can be given than this: Plant when the apple tree is in blossom. Perennial plants understand the science of seasons better than those who take instructions at second-hand, and the cases are rare in which these, whether trees, shrubs or flowers, are extensively cut off by late frosts, or suffer by premature growth. At this time the ground is sufficiently warm and at the same time moist enough to secure active germination. If an earlier time is selected, the seed may decay, under the influence of cold and wet soil. Seeds may be planted much later, and in fact through the summer; but then they must be carefully watered, and not snffered to become very dry, at least till the roots are well grown.

2. *The state of the soil.*—This should always be well pulverized, and cultivated for a considerable depth. The spade, of course, is the best tool to accomplish this, its unfinished work being followed by an iron rake. In sowing, lay a board by the side of the row in which the seed is to be placed, so as to avoid the necessity of treading holes in the soft soil.

3. *Depth of sowing.*—Plant *shallow.* In a hot sun, a greater depth is necessary, but a very thin sprinkling of well-pulverized soil is all the covering usually required for small seeds: for the large seeds, like the sweet pea, a depth of half an inch or more is necessary.

Moderate watering from the spout of a watering-pot is desirable if the weather is very warm, and especially if the top of the ground becomes very dusty; but a garden may be too wet as well as too dry.

4. *What shall we plant?*—There's the rub. The ten thousand rural districts have each their own favorites, whether of long lists or of individual

plants, and in each of these districts there is every variety in the extent of the floral department, the time that will be devoted to the flower-garden, and the skill that will be available in overcoming difficulties and in guarding against "accidents."

Unless one can devote a generous portion of time and reasonable skill, and some little expense at least, our choice would most decidedly be, to convert the whole of the flower-garden into a handsome green lawn, which is infinitely in better taste than a shabby *ornamental patch.*

For reasons based upon the foregoing remarks, we prefer, in these miniature gardens, an extra proportion of biennials and perennials. They require less care, generally, and less labor, and will remain in flower quite as long. The members of the *Pink* family, for example, blossom in various months, do not rapidly fade, and present a great variety in form and color; and even the Rose cannot boast of more elegance than is seen in several species of this extensive family.

A list of desirable annuals was given in the first number (July) of this volume, p. 46, to which we refer the reader, and to this list we add a few more:

Alyssum maritimum: Sweet Alyssum. White, and long racemes, from June to November. Plant 1 foot high.

Amaranthus tricolor: beauty in the leaf.

Angemini grandiflora: White. May be taken up and kept in pots in the cellar during winter, and will flower elegantly another season.

Caccalia coccinea: Scarlet, from July to September. One and a half feet high.

Centaura Americana: Purple pink, August. Two or three feet.

Clarkia pulchella: Purple, June to September. One foot.

Hibiscus vesicarius: various, June to September.

Impatiens: (Balsams.)

Ipomea quamvelit: Cypress vine. This beautiful climber seldom succeeds well, because it is not understood. Before planting, the seeds should be scalded in boiling water, (or in boiling milk, as some have said,) and allowed to remain in the liquid several hours, otherwise the seed will not be able to burst the outer covering; or if it does, it will be a long time before its sprouts will appear, and these will be destroyed by the frost ere it is ready to blossom. It should have a rich soil, and be kept moderately moist; it then becomes the most beautiful vine of the garden. Its crimson flowers are very handsome and abundant, but very soon drop off, though they are replaced by others. We have never failed in bringing this flower to maturity, but the season is too short to ripen the seed, and these must either be raised in the hot-house, or be imported. Hence the six-cent papers contain only some half-dozen seeds. Sow it early in May. It is still better to bring it forward under a frame. It makes an elegant cone or pillar, by being planted in a circle, three or four inches apart, and properly trained to a height of six or eight feet; in August and September it will pay well for the trouble.

Petunia: several varieties, June to November, three or four feet. May be trained on a trellis.

Viola: very various.

Perennials may be sown in the spring, or often as late as August, in any convenient place, in a good soil, and be transplanted in the fall to their permanent positions. They may also be propagated by dividing the roots, by layers, cuttings, &c. Generally they will not blossom the first year.

Among the favorite *bulbous* perennials, are the Crocus, Dahlia, Ferraria, Hyacinth, Lily, Narcissus, Pœonia, Ranunculus, Tulipia. These sorts require specific treatment, and our pages already contain several valuable suggestions

in relation to them, and especially the number for November of this volume, page 308.

As to herbaceous perennials, we would select the following as the desirable, though by no means superior to many others. We select such as do not require especial skill or peculiar treatment.

Althæa: This is a splendid family, containing a great variety of forms and habits, from the tall moody shrub to the most diminutive species of Hollyhock.

Antirrhinum, the Snap Dragon, is a curious genus, the flowers of which are quite noticeable. They are too well known to require description.

Chrysanthemum: This family is highly ornamental, one of the handsomest of fall flowers.

Clematis: The *C. virginicum* is a native of our own country, and one of the most desirable of climbing vines. Its growth is very rapid; its white blossom is handsome and abundant, and its seed-vessel very peculiar. It is a fine plant with which to cover fences or even buildings.

Corydalis fungosa: Climbing fumitory. Another indigenous climbing vine, growing fifteen or twenty feet in length.

Dianthus: Many species of this genus are biennials or perennials, and, as already observed, are among the most desirable plants. Among the favorite species are the *D. caryophillus*, the Carnation Pink, which are also various in character: it flowers in July; *D. hortensis*, flowers in June; and *D. barbatus*, or Sweet William, which are white, pink, purple, crimson, scarlet, and also variously fringed, edged and spotted.

Dixitalis: Foxglove. Purple, June and July, two or three feet in height.

Hibiscus: Mallows. Showy, various in height, from six or eight feet, down to a few inches.

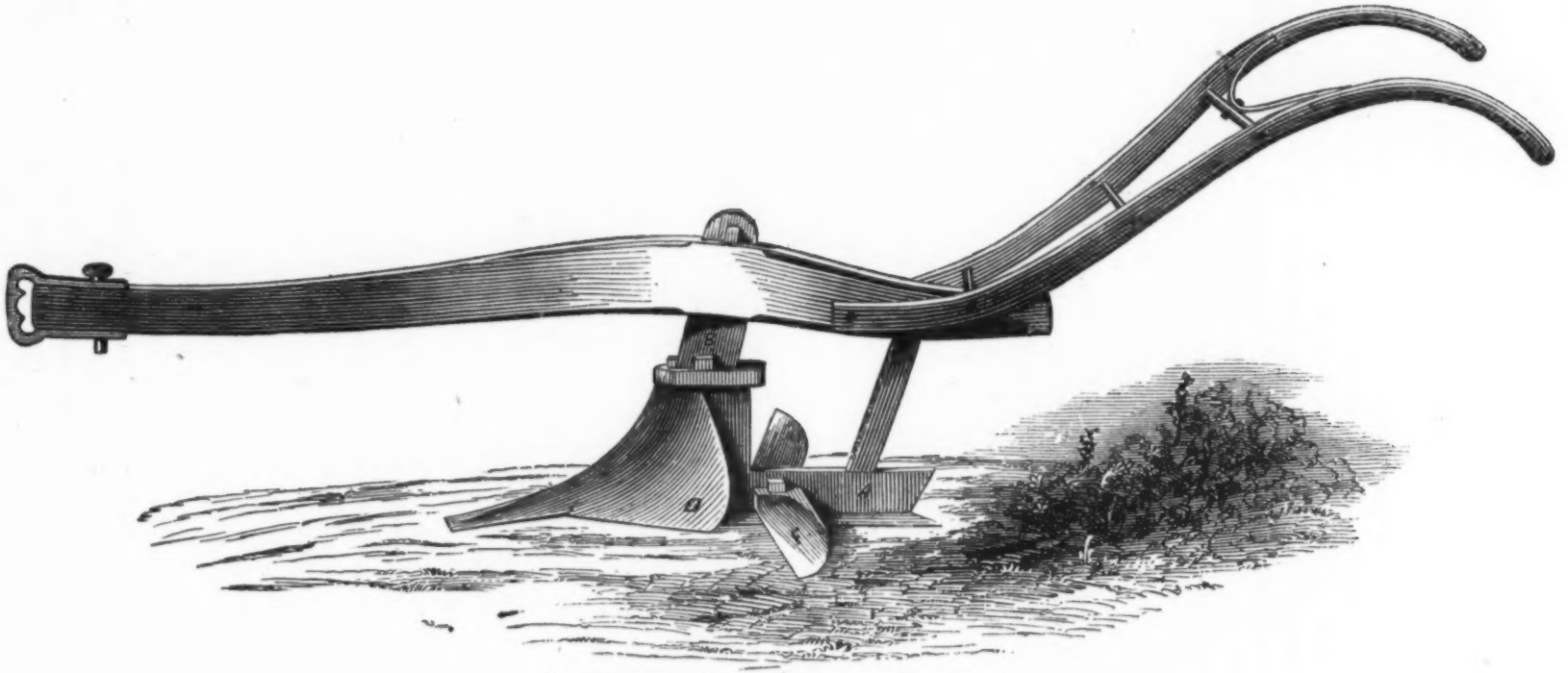
Lobelia cardinalis: Cardinal flower. This has scarcely a superior; its brilliant scarlet spikes are very elegant. July and August, two feet. It is a native of this country, by the side of brooks.

Phlox: This is one of the flowers for which premiums are offered by the Massachusetts Horticultural Society, and for the exhibition of which a day is specially appointed. The varieties are very numerous: different sorts are in blossom from May to October. The following form one complete series, which may be multiplied: In May, *P. sabulata*, colors various, white, purple, pink, &c.; *P. mivalis*, white; *P. divaricata*, pale blue; June, *P. Maculata*, purplish red; *P. carnea*, flesh-colored; *P. listonia*, red; July, *P. Van Houtteii*, purple stripes on white ground, superb; *P. picta*, white and red; *P. fleur de Marie*, white with a dark red eye; August and September, *P. Breckii*, light purple with white eye, four to six feet high; *P. cordata grandiflora*, purplish pink, white centre, four or five feet high; *P. rosea superba*, rose-colored; *P. undulata*, red, and changing to white.

Saracenia purpurea: Side-saddle flower: difficult of cultivation, as it grows in wet bogs and swamps. Every part of the plant is curious, but not remarkably showy.

We make no distinction between biennials and perennials, because the distinctions are not well defined. Many kinds are biennial or perennial in different climates, and some of them blossom sometimes in the first season. Foxglove is one of these, as found in our own experience. For edging, no plant in our opinion is so desirable as Box.

Among shrubs, the Rose, of course, stands at the head; and among Roses, none make a more magnificent display, when properly trained, than the Prairie Rose, flowers red, with a white stripe. With this exception, we leave our readers to judge entirely for themselves. The choice, from the entire list, would depend on a great variety of circumstances.



RICHARDSON'S CULTIVATOR PLOUGH.

RICHARDSON'S CULTIVATOR PLOUGH.

The accompanying engraving represents an improved Cultivator Plough, which has recently been patented by Mr. F. E. Richardson, of Hicksford, Greenville Co., Va.

It is intended to supersede the wrought iron plough, or any other used in cultivating or stirring the earth effectually, and is thought an improvement over all others on account of the arrangement of the central bar, the form of the double compound share, the wings, and the simplicity of the manner in which the parts are united together, and the facility with which those which are worn out may be replaced by others. It is also a valuable implement for use without the wings, as a marking or checking plough in corn planting, and also as a slightly hilling plough. It is particularly designed for use in streaking or checking the land in corn planting, for streaking it for the cotton seed, for raising tobacco, and for cultivating each and all these crops. Its construction is as follows:

A is the centre bar, which extends forward to a point fitted into a cavity in the share or share point D, and is 22 inches in length. A little forward of the centre of A is the upright marked B, (the letter being very faint and indistinct in this engraving,) which is of the same piece with A, and which is inserted into the beam of the plough. On B, but concealed in this engraving by the share D, are two shoulder-pieces or fans of a suitable width and shape to give to it (D) a firm support. B is furnished with an oblong link, which surrounds also the top of the share D, and which is confined by a wedge in a mortice, through B. F represents the wings, which pass through the centre bar A, and are firmly fastened by a shoulder on one side, and by a wedge which passes through the wings on the other. The wings are sharp in front, and of sufficient strength for the service that will be required of them. The cast iron parts of the plough are, of course, three in number; one, the centre bar and upright, with the supporting shoulders or flaps; second, the double share, D, and third, the wings, F. The wood-work of this plough differs but in one respect from other ploughs, and that is, in an oblique standard about twenty inches long, to which the hinder parts of the centre bar and draught beam are attached, by means of a tennent on the draught beam, passing through a mortice in the oblique standard, which standard is forked at the lower end, and passes on both sides the centre bar, to which it is fastened by a wedge. This standard extends above the beam. In this respect the engraving is incorrect. The handles also should be fastened to the beam as far in advance of the sheath bar as it is here in arrear. A pin, fifteen inches long, passes through the handles, and also through the upright or oblique standard. This standard should be of iron, except its lower end. From the sheath bar or collar to the insertion of the oblique standard in the centre bar is nine inches, which affords a purchase for the easy guidance of the plough.

The cost of the castings for this plough is only $1.15, and the wood-work, though it will vary in different places, is scarcely more.

HORTICULTURAL NOTES.

The Circle of Pears.—Keeping apples the year round, so as to furnish a supply for every day of the year, is an old experiment, which all good cultivators have found no difficulty in performing. But with pears it is quite a different thing; and many, not understanding all the conditions for raising,

gathering, keeping, and ripening the winter varieties, have come to the conclusion that winter pears are worthless. As a proof, however, of what may be accomplished when skill and experience direct in their management, Col. Wilder states that the *Easter Beurre*, *Doyenne d'hiver nouveau*, *Beurre Bretoneau*, and most of those with a thick, rough epidermis, are readily kept through the winter and spring, and into summer, and that some of this character he had preserved "in perfect condition the past season, and had them in eating, with the *Madeleine*, in August."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

SEEDING FOR GRASS AND HAY.

Messrs. Editors: — One of the most important things that the farmer can adopt, is to use a liberal supply of timothy and clover-seeds upon his farm. No man need to apprehend any danger from such application. It is all-essential that the agriculturist should be liberal with the contents of his purse when he makes a purchase of clover-seed. Many men, however, who carry on farming, are not extravagant in buying either timothy or clover-seed. This is not as it should be, by any means; for money expended in the purchase of seed which will result, when sown, in the enrichment of your fields, is not lost; on the contrary, it is put out at interest in a way that will pay him more than two hundred per cent. upon the principal expended annually. Every man who thinks of making himself eminent as an agriculturist, should not shrink from the duty of buying an ample quantity of grass and clover-seeds to enrich his land to such a degree as to put out of question the idea of having his farm called *barren*. The truth is, if we have land that is capable of receiving and producing clover, we ought not to neglect sowing it over plentifully with that kind of seed which will make it fertile and lively. It is manifest beyond doubt, that heavy soil can be made light and lively by sowing it with clover-seed. This I have tried satisfactorily. The roots of the clover penetrate the soil, and move it so that when it is ploughed, there seems to be new life imparted to every part of it. I do not think that timothy grass operates so beneficially in enlivening land as clover, but either will not injure impoverished soils. Probably nearly every one has noticed that timothy-grass roots do not make their way far into the soil, but are confined mostly to the surface of it. Now, from this consideration, we must conclude that clover possesses a valuable superiority over most other grasses in respect to its roots. These are long and large, and they penetrate the soil deeply, stirring it up to a good depth, and bringing out its latent powers to the surface, thus creating vegetable matter where it will do good.

But to change the subject to another point,—How much clover-seed should be sowed upon an acre of land? Some few things must be considered before we can determine this. We must first learn the state of the soil to be seeded; and, second, must know something of the history of its past treatment. If we find, by an examination of the soil, that it has been abused, meanly cultivated, we should plough it deep, sow it either to barley or winter wheat, and apply, just before digging the last time, at least six or eight quarts of clover-seed to the acre. This quantity is not too much, and some liberal-minded farmers in our State have even exceeded this amount. They are not, however, subjects of rebuke for thus strewing on the seed. Would to God that all our agriculturists would sow four times the amount of clover and grass-seeds that they now do! Our soils would not be impoverished as

they are, if we had adopted the plan of sowing liberal quantities of grass-seed twenty years ago, and had then formed the resolution to have kept up the operation until the present time. To-day, had we adopted such a plan, the United States would be worth several millions of dollars more than they are now. There is no use of talking about this matter now, for the time is past; but we should be more careful in future, and make it a point to sow more grass-seed, more clover-seed, and plough deeper than we have in by-gone years.

Timothy-seed should be sown on lands at the rate of a peck to the acre. I do not care what people say in relation to the size of the seed. Sow at least eight quarts to every 160 square rods of ground, and my word for it, you will get paid a handsome profit for thus liberally seeding your ground. I never saw a piece of land seeded too much—that is, with clover or grass-seed of any kind. It is all folly to talk about putting on *two quarts* of clover-seed to the acre. When you thus seed, you lose much of the ground which is but partially seeded. In other words, two thirds or more of the land is unoccupied, and hence lies bare to the sun's rays, or is "sodded over" with June-grass, or some other foul thing.

Then, if you would enrich your ground, and produce an abundant supply of grass for your cattle, sow your fields liberally with grass-seed. The purchase of clean and handsome grass-seed, at $4 per bushel, and the purchase of clover-seed at $6 or $7 per bushel, cannot be considered any other than profitable expenditures of money.

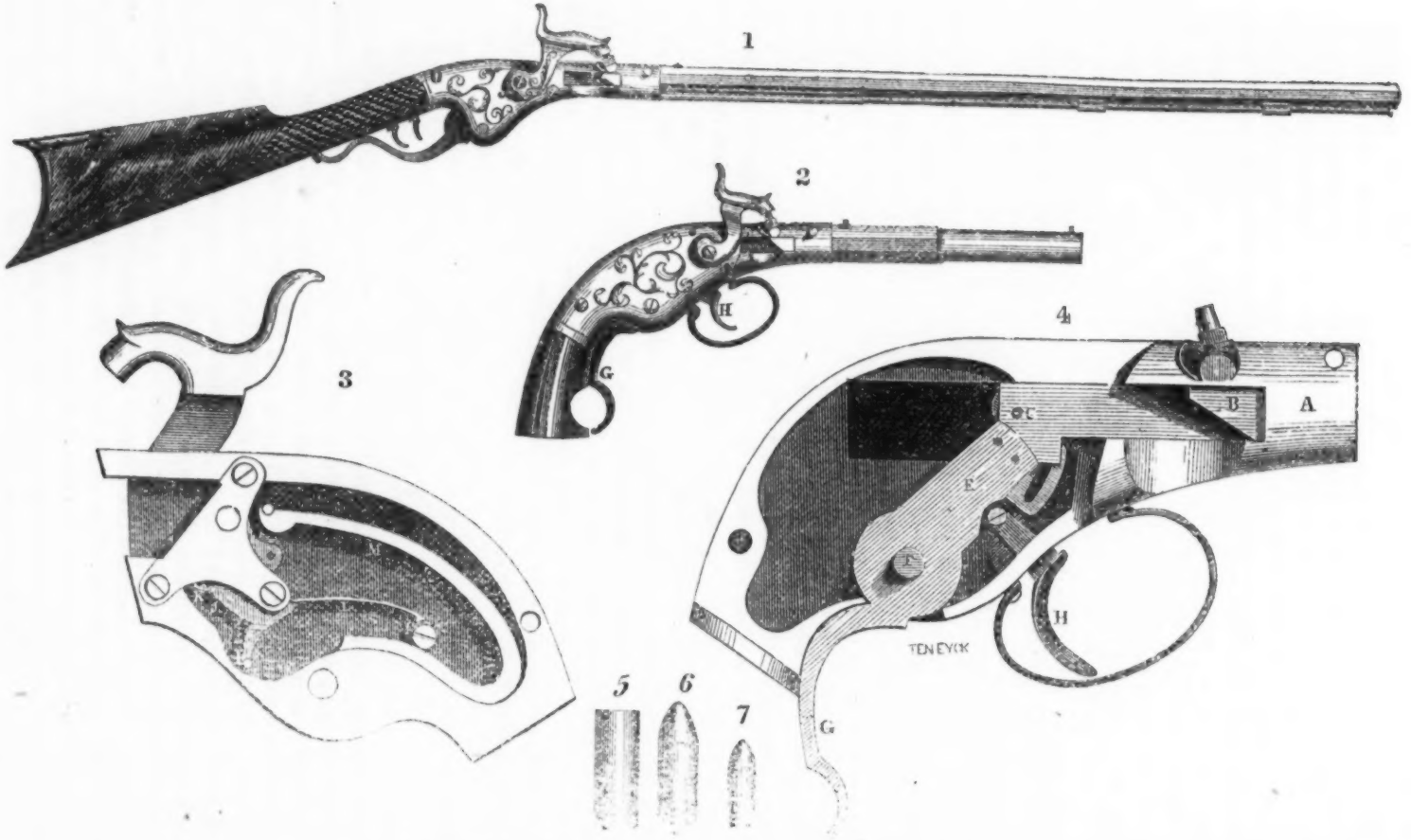
The time for sowing grass-seed must be left to the judgment of every farmer. Immediately after sowing your spring crops, and before harrowing the last time, is a very good time to put on the seed. Some sow their clover-seed before the snow goes off—that is, on land which has been sown to winter-wheat in the fall.

It is not a bad plan, by the way, to mix timothy-seed with clover-seed in the proportion of one bushel of the latter to two bushels of the former. This is a very good plan, and works well. After the clover "runs out," the timothy-grass will continue to do well, and makes very good mowing land, and withal, produces a good soil for subsequent ploughing.

Baldwinsville, N. Y., March, 1853. W. TAPPAN.

SELF-PROTECTION.

MR. SEWARD, in a speech in the U. S. Senate against abolishing the duty on railroad iron, said, "I am ashamed and mortified when a foreigner comes to my table, and I am obliged to own that the shovel and tongs and the andirons at my fire-place, and the knives and forks on my table, are made by the foreign mechanic and citizen, to the prejudice of labor, industry and art in my own country. But I think it is a far deeper reproach against our national pride and patriotism, that we should bring iron from abroad to *make roads over our own iron ore-beds;* I am shocked by such a want of nationality." Iron is dear because the demand is great and the supply small. And *why* is the supply small? Because you have put out the fires of your forges, and suspended manufacture for the last nine years. Now, then, the manufacture is recovering in spite of you. Leave it alone. Capital, and labor, and genius are reërecting the forges and rekindling the fires, and the ore and the coal-beds are giving up their treasures. Let the workshops be at home and not abroad; encourage your own farmers, manufacturers, and mechanics, and railroad iron from American ore will be abundant and cheap.



BREECH-LOADING FIRE-ARMS AND PATENT CARTRIDGE.

MARSTON'S BREECH-LOADING FIRE-ARMS AND PATENT CARTRIDGE.

The annexed engravings present views of improvements in breech-loading fire-arms, invented by William W. Marston, of this city, and for which a patent was granted on the 8th of January, 1851; also the cartridge for such fire-arms, invented by Marston & Goodell, patented on the 18th of last May, 1852. Figure 1 is a side view of Marston's breech-loading rifle; figure 2 is a like view of a breech-loading pistol; figure 3 is an inside view of an improved gun-lock; figure 4 is an interior view, showing the patent breech; figure 5 is a side view of the shell of a patent cartridge, and figures 6 and 7 are upright views of two cartridges of different sizes. The same letters refer to like parts. This is a most superior and convenient breech-loading fire-arm. A, figure 4, is the butt of the barrel, which is let into and secured in the stock; B is the breech-bolt. It is both ramrod and breech at the same time, and in this consists one of its excellences. This breech is now pushed close to the butt of the barrel, and closes up the orifice of the bore. To load the rifle, apply the hand to the lever, G, and push it forward towards the trigger, H, and the breech, which is a sliding bolt, will be drawn back into the end of the dark recess exhibited, and expose the chamber for the reception of the cartridge. The cartridge, figure 6, is simply laid in this chamber, (which is then open before, as it is now behind the breech-bolt in figure 4,) and the said breech-bolt is made to force the cartridge into the bore of the barrel, by drawing back the lever, G, into the position shown in all the figures. The rifle or pistol is then loaded, and with a cap on the nipple, is ready to be discharged. This is certainly a very simple mode of loading a rifle or pistol, and can be done nearly in a second of time. The manner in which the breech-bolt is operated and maintained snugly in its place exhibits great ingenuity. The inside of the loading lever, G, is a small arm, E, which forms part of the lever, (which works upon the fulcrum or axis, F,) and on its extremity is a cam groove; a pin, C, in the back end of the breech-bolt, B, passes through this groove. When the said breech-bolt is pressed close up to the ball in the barrel bore, the end of it at C is in the same position and combination of arrangement as the keystone of an arch, to receive the backward force of the discharge, in the same manner as pressing upon the apex of the arch. The combination is an ingenious mechanical arrangement. A small round part, in front of B, fits behind the cartridge and enters the bore of the barrel snugly, so that it is impossible for any leakage of flame or powder to take place. A small hole is drilled through the centre of the breech-bolt, which communicates with the priming hole of the cap nipple to ignite the powder in the barrel. This sliding breech-bolt along with the loading lever is a very strong arrangement; no charge of powder can move it in the least. The loading is always uniform, without trouble or variation in the result.

Cartridges.—The cartridge is composed of the shell, 5, in which the conical bullet shown in figure 6 is placed and cemented, and the rest filled with powder. The butt of the cartridge is a disc of leather with a small hole in its centre, to let the flash of the priming cap pass through the priming hole into the powder. The edges of the leather disc are greased, and the disc of one cartridge is driven out by the bullet of the next cartridge, as the said part of each cartridge is left behind. Every succeeding cartridge, therefore, by driving out the previous leather, cleans out the barrel, so that rifles using such cartridges never require to be swabbed out. The barrel will remain bright inside after firing a thousand shots.

Lock.—The lock is of the common kind, but as applied to this rifle, it affords the means of strengthening the small three-legged brace plate screwed over the tumbler, which operates the hammer. M L are the springs abutting on the tumbler into the notches, K, of which the trigger-latch, I, catches. The two sides of this lock are raised flanges, and thus it differs from the common lock, inasmuch as the springs, &c., are contained in it as in a box; the common lock is let into the stock; this one is merely screwed to the stock. The cartridges are an excellent invention, and the principle of thus loading at the breech is the most simple and best yet presented to us.

Rifles, pistols, and shot-guns are now manufactured on a large scale, under the eye of the inventor, a practical gunsmith, in the factory on the corner of Washington and Jane streets, this city. No less than ninety hands are employed, and rifles from $25 to $100 are constructed. This rifle will, no doubt, arrest the attention of Mr. J. Chapman, author of the *American Rifle*. The question of good fire-arms has been an exciting one for some time, and at the present moment, this rifle of Mr. Marston is creating quite a stir in the capital of France, where Mr. Molton has been astonishing the Parisians with its excellent qualities in rapidity of loading, length of reach, and accuracy of aim. We have no doubt but the breech-loading fire-arm will yet supplant the muzzle-loading kind entirely. Why should the ball be rammed down from the top of the barrel to the bottom, to be driven back the old road again? Not one scientific argument can be adduced in its favor, but plenty against it.

These rifles can be seen at the store of Mr. Marston, No. 205 Broadway, this city.

CULTIVATION OF COTTON.

We find the two following articles in the *Southern Cultivator*, from writers who evidently understand themselves:

Cotton-Seed.—Messrs. Editors:—I have been experimenting with cotton seed for a number of years. The most valuable experiment that I ever made was in 1829, at which time I was planting black seed. I then procured the Petit Gulf or Mexican seed, and found them a great improvement upon the black and green seed, the only varieties I had previously used. Having been so well renumerated for that change, I tried every variety of improved seed which has been brought to my notice, until the present time—such as Silk Cotton, Okra or Twin seed, some direct importations from Mexico, the Hogan or Pomegranate seed, the Mastodon, Brown, Pitt, Willow, Sugar Loaf, and other varieties of seed, none of which have I found equal to the Mexican. The Mexican will deteriorate if planted in thin land, but if a sufficient quantity to make one's seed be every year planted in rich fresh ground, and well cultivated, it will not degenerate; on the contrary, it may be greatly improved. The secret of having good cotton seed, much better than any of the costly varieties, is to plant in rich fresh ground, cultivated well, and select the best stalks for improvement of seed. This is the plan generally pursued by those who raise fine seed for sale. The second and third year after planted on ordinary ground and with common care, the purchasers find that their fine seed yields no better than their old seed. With proper care the Mexican seed will yield as much per acre as any seed that I have ever tried; some varieties (the Mastodon and Pitt) will remain longer in the boll, and will waste less from the winter rains and winds, whilst other varieties (the Brown and Sugar Loaf) pick easier and fall out more; on rich alluvial land, where the product is greater than the hands can gather. It may be well to plant a

small portion of the crop in Mastodon or Pitt seed, for February and March picking. In the month of February, I have averaged from the entire ground planted in Mastodon, 3,000 lbs. to the acre; no other seed (except Pitt) would have yielded so much, after standing in the field exposed to the wasting winter rains and winds. This kind of cotton picks much easier in the winter than in the fall season. Whatever variety of seed the planter may be best pleased with, if he wishes to keep them pure, it is absolutely necessary that he plant a sufficiency of rich land to make planting-seed for the next year.

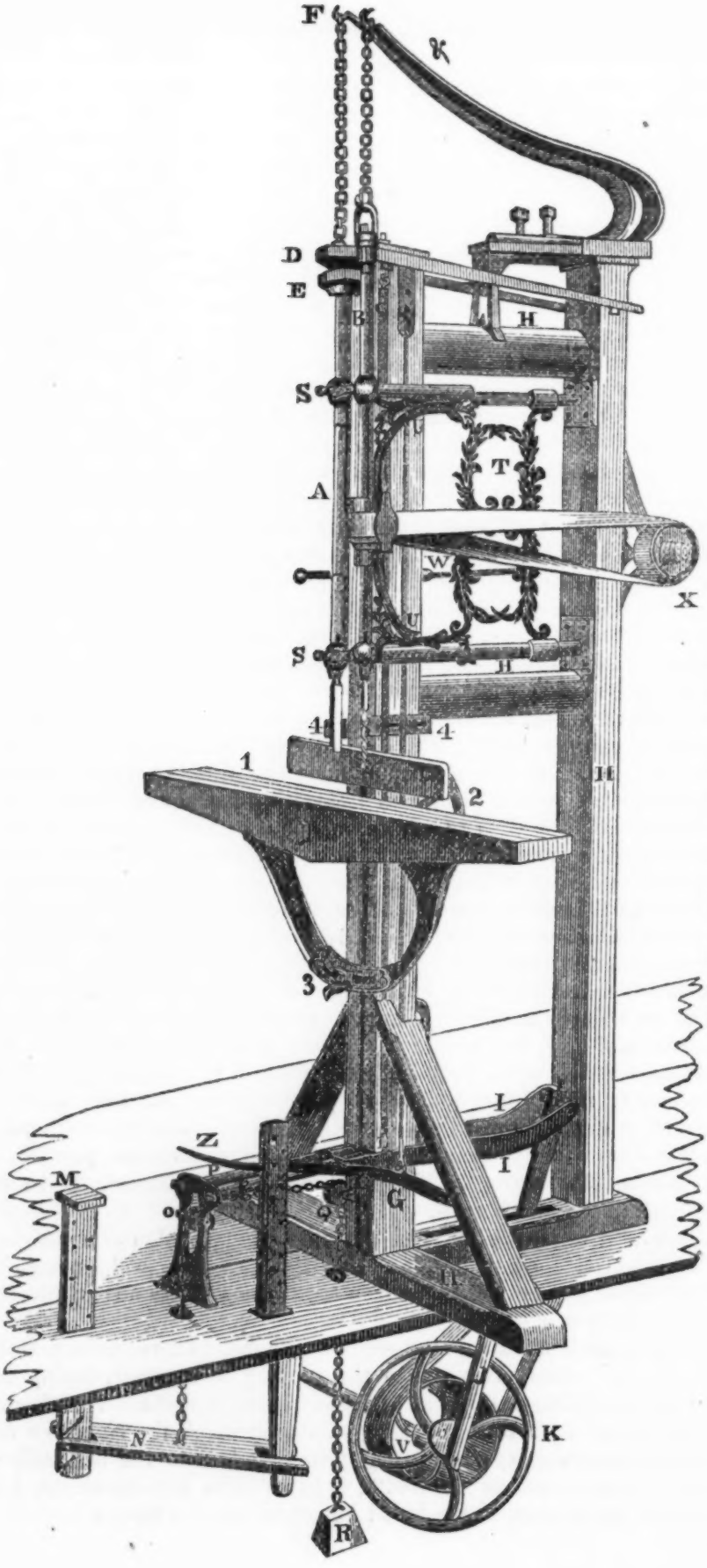
Planting and Cultivating Cotton.—In the first place, I recommend you to *make* all the manure you possibly can, by building stock-lots, and hauling into them, from the forest, corn-field, and thrasher, all the litter you can, and spread it entirely over them—on which, never fail to pen your stock every night. In this way you can make as much manure of the first quality as you can haul out. As early in January as you can, commence hauling your manure, and deposit it in piles thick enough, so as to be certain to have *every row* manured alike. As soon as you get as much on one field as you want, commence laying off your cotton row with a scooter-plough, and put your manure in the furrow about three inches deep, on which throw your beds with a one-horse turning-plough, or common shovel and mould-board; the latter I prefer, especially in land that was in cotton the previous year, as you can plough up the cotton stalks more easily with them than any other plough I have tried. This should be done in January or February, so as to give your beds time to settle before planting, which will prevent the tearing down of your beds in opening, and covering your cotton, besides other advantages unnecessary to mention here. The 10th of April, commence opening your beds with an opener made of a block of wood twenty inches long, triangular, with a *small*, *short* scooter-plough in front, with beam and handle; never open your beds deeper than two inches. I should have mentioned that a side harrow should precede the opener, to clean the bed of trash and clods.

Roll your seed in ashes, lime or plaster, and strew them *very regular*, at the rate of half a bushel per acre, and cover them *shallow* with a block or coverer made of a piece of wood, 24 by 16 inches, hollowed out in front one inch, with beam and handles.

As soon as there is enough cotton up for a stand, commence running around it with the "Mississippi Scraper," which will leave the bed in the shape of the roof of a house, with the cotton standing on the ridge, (as it were,) about one inch wide, ready for the hoe, which follows, chopping *lightly* through, leaving from 1 to 3 stalks in a place. After you have gone over all your cotton in this way, turn on it with all hands, with the hoe, and put it to a stand as soon as possible. After which, as soon as possible, run around it with side harrows. The balance of the cultivation to be done *shallow*, with sweep and harrow.

I have now given my friend and his neighbors my plan of managing a cotton crop. And I avow most emphatically, that if he will manage as I have directed, he will never fail to make as much cotton as any of his neighbors, other things being equal.

The above plan is not altogether original with me. I have been managing a cotton crop but about six years in the capacity of overseer, during which time I have studied agriculture as a physician studies medicine. After reading all the agricultural works I could get, among which the *Southern Cultivator* stands preëminent, and writing private letters to the best and most successful cotton-growers of the South, together with my experience, I have fallen on the above plan, as the best I have tried or seen tried.



MORTISING, BORING, AND HUB-MORTISING MACHINE.

OTIS'S MORTISING, BORING, AND HUB-MORTISING MACHINE.

The engraving on the opposite page is a perspective view of Otis's Mortising and Boring Machine in combination, for which we are indebted to our neighbor the *Scientific American*. A represents the mortising or chisel shaft, B, the boring or auger shaft.

The mortising is connected with the power, and operated by it in the following manner:

The side rods, C, one of which is seen in the engraving, are connected with the long yoke, D, at the top of the chisel rod, by an adjustable joint, with jam nuts to hold all fast together and keep the side rods of equal length. The two yokes, D and E, are connected together by short eye-bolts, which give the yokes full play, yet causing the chisel rod, yokes, &c., to move together in forcing the chisel down into the wood, and to retract the same by the help of the steel spring, F; there is a provision likewise for diminishing the friction between them.

The rods, C, are connected at the lower end to a short slide, G, which plays in a groove in the bottom of the frame-work, H H H H H, by a screw. The slide, G, has a steel pin in it which plays in a groove in the movable letters, I I, that are connected by the pitman, J, to the balance wheel, K; the balance wheel causing the levers to make a full stroke at every revolution, but not operating on the chisel rod, because the centre of the pin in the sliding fulcrum, L, is cut away, thus causing the centres of motion to be directly over each other, and of course giving no motion to the chisel rod. To bring the chisel rod into play, the foot is pressed down on the treadle, M, which carries down the lever, N, and the chain that is connected to it that passes over the little chain pulley, O, to the sliding fulcrum, L, thus causing the sliding fulcrum with the movable lever, I I, to slide forward on the rods, P P, over the steel pin in the slide, G, and of course carrying down pin and slide rods and chisel rod with it, and allowing the chisel to return again to the same level at every stroke; mortising, of course, deeper and deeper as the levers slide, or the resistance is moved farther from the fulcrum and nearer the power. The sliding fulcrum is brought back to its former position by the chain passing from the sliding fulcrum over the chain pulley, Q, to the dead weight, R, when the pressure of the foot is removed, thus bringing it into full stroke, or five inches, or stopping the chisel, at the option of the operator. The chisel rod passes through the guide bolts, S S, the balls of which are lined with babbitt metal. Said guide-bolts are connected together by the ornamental brace T, to which the boring brace, U, is attached, thus causing all the upper work to move in or out together, for any thickness of stuff, and also keeping the back and front boring shafts the same relative distance from each other.

By this arrangement the chisel and auger are always in range, so that the chisel follows the auger, which in mortising hard wood is very desirable. They are held in any desired position by thumb screws not seen in the engraving.

The boring shaft is operated by a belt coming up from a pulley, T, through friction pulleys, to the short shaft at the back of the machine, on the end of which is a pulley not seen in the engraving. This short shaft hangs in a brace attached to the ends of the guide-bolts, and moving in and out with them. This pulley is made a tight or a loose pulley by a clutch, the shifter of which is seen at W, thus causing the pulley at X, with its belt running to

the boring shaft, to revolve at pleasure. The boring shaft is brought down by the rod Y and the treadle Z, and retracted by the spring &, and operates with a speed and precision unknown in any other kind of boring machines. The bed, 1, in which the stuff is bored or mortised, is adjustable, being raised or lowered at pleasure for any width of stuff, by the hand wheel and bolt at 2, or made to work on any bevel required by the bevel sweep and nut at 3. The stuff is held back against a guard, and held down by regulating screws at 4 4.

A graduated scale of prices is charged, according to the sort of machine required, for the boring and mortising apparatus can be had separately, as well as with or without the hub-rigging, and also adapted for hand work or horse-power.

Full particulars of which can be had on application to Otis & Cottle, Syracuse, New-York.

JAPAN PEA.

We introduce the following interesting correspondence from a Boston paper, relating to the "Japan pea," which is now exciting some attention as a new article of farm crops. *The whole plant, with the seed*, is recommended as excellent for fattening hogs and cattle.

Massachusetts Horticultural Society.—The accompanying letter from Mr. Ernst was read at the last meeting of the Society, and being deemed of sufficient importance to the agricultural community, it was ordered to be published:

My Dear Sir:—I herewith send you for distribution amongst the members of the M. H. Society, a small parcel of peas.

The growth of the plant is peculiar, being of an upright and stiff form, somewhat branching; the leaves are large, light-green, and downy beneath; the blossom is small, and of lilac color; seed-pods numerous, small, and woolly; growing in clusters over the entire plant, proving very productive.

Its habit of growth is such as to fit it to withstand severe storms; and, should it prove valuable as food for cattle, it must commend itself to the agricultural community in field culture.

In its cultivation it evidently requires room, to enable the plant a full development for branching. Its bearing properties are immense.

Accompanying the seeds, I send a plant, to show its habits of growth and bearing properties.

Its origin is said to have been Japan. It was introduced into this country some two years since by the agency of one of those calamities which sometimes result in benefit to mankind.

An American ship encountered a Japan vessel in distress, and the crew were carried to San Francisco, California. Amongst the stores which were transferred was the "Japan pea," a few of which found their way into the hands of Dr. Edwards, of Alton, Ill. He handed them over to Mr. J. H. Ladd, a distinguished horticulturist, who presented the produce to our Society. Those now sent you were grown in my grounds, having fully matured in our climate. Your climate may prove too severe.

I have sent small packages of seed to kindred Associations, with the request that they be placed in careful hands.

It is possible that it may not be any thing new with you. I would be thankful for any information you may possess in reference to it.

Very respectfully, A. H. Ernst.

Spring Garden, Cincinnati, Ohio, January 11, 1853.

The plants and seeds were submitted to the inspection of the Society's distinguished botanist and vegetable physiologist, J. E. Teschemacher, Esq., and in return the following note received:

My Dear Sir:—The plant alluded to by Mr. Ernst is *Cajanus bicolor*, a native of East Indies, Amboyna, Japan, &c.; flower small, interior yellow, vexillum purple, erect shrub, pubescent, nearest in alliance to *Lupinus*. The seeds are good to eat, and, when young, very delicate. On soaking the round seeds for an hour in moderately hot water, they take exactly the form and appearance of the common white bean, become quite tender, and have a pure and delicious nutty and oily flavor. *The whole plant, with the seed, is excellent for fattening hogs and cattle.*

There is one other species, *Cajanus flavus*, common in South America and the West Indies, where it is sometimes used for a fence to sugar plantations. In Jamaica, this species is much used for feeding pigeons, and is there called the pigeon-pea. In Martinique the seed is much esteemed for the table.

Being a tropical plant, it would hardly stand our winters. Yet, from the observations of Mr. Ernst, it is not improbable that our climate might admit of an annual harvest of the seed, which seems to be so abundantly produced as to make an experiment highly interesting.

Most truly yours, J. E. Teschemacher.

Boston, 19th Jan., 1853.

COTTON CULTURE.

A writer in the *Soil of the South* expresses the following opinion:

"In looking over the *Soil of the South* to-night, I noticed an article from the pen of E. J. Copell, in which he states, that Capt. Day informed him that he made (or thinks he will make) one bale of cotton per acre off of several acres which had been cultivated exclusively with the hoe. Now, as this goes to prove what I have endeavored, time and again, to impress upon my neighbors, in reference to cotton culture, I have concluded to embrace this opportunity of calling attention to it.

"I have long entertained the opinion that, if it were possible to cultivate a *crop* of cotton entirely with the hoe, we would make more per acre. But as this is out of the question, the plan is to use a plough or implement which will do the work as near like the hoe would do it as possible. And for this purpose I would recommend, above all others, the Mississippi Scraper and Side Harrow. I have used both these implements the past year with the most satisfactory results. I invariably had all cotton land ploughed *early*, so as to give it time to settle before planting. I run the side harrow over the beds before I plant, and open them *very shallow*, with an opener made for the purpose; rub my seed well with ashes or lime, and strew them very regular at the rate of one and a half to two bushels per acre, and cover them *shallow* with a block twenty-four by eighteen inches, four inches thick, with beam and handles. When my cotton is up enough for a stand, I commence running around it with the scraper, which leaves it about an inch wide in the drill, standing on a bed in the shape of the roof of a

house, and chop *lightly* through it with a hoe, leaving from one to three stalks in a place. After I have gone over my crop in this way, I turn on it with *all* my hands, and put it to a stand. The balance of the work is done with the harrow, hoe, and sweep. I have tried many plans, and this I find to be the best known to me, as by it I make as much cotton as I can possibly pick—even here in the mountains. Now, I have no doubt, that if Capt. Day had ploughed his cotton with the scooter and shovel, *deep* as planters generally do, that his cotton crop (or that part of it cultivated with the hoe) would have fallen off at least a third."

PHELPS' BEE-HIVE—FEEDING BEES.

We give drawings of this valuable invention, patented in April, 1852, after twenty years' experience in the care of bees, ten of which were devoted to the study of their habits, and of the habits of their enemies, the bee-moth miller, the moth, &c., with numerous experiments with hives of various patterns.

Fig. 1.

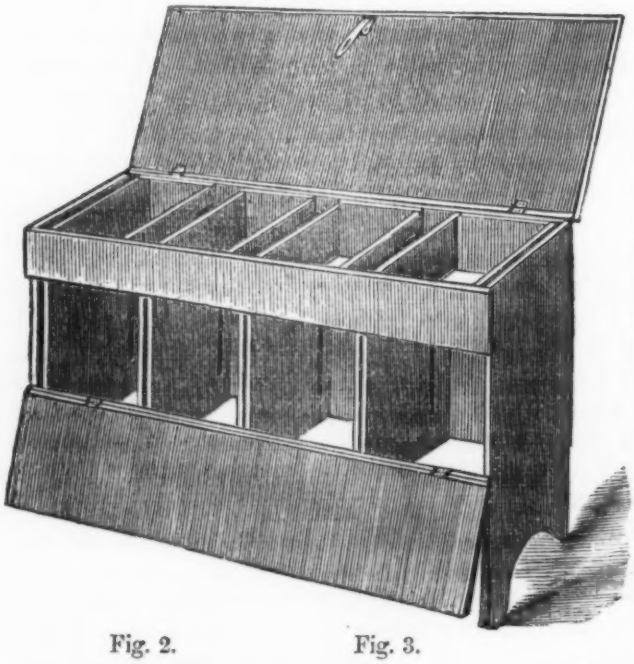


Figure 1 is a view of the back of the hive, with the lid or cover raised, and the rear door opened, showing the arrangement of the main boxes, and also the top boxes. Each of the large boxes is constructed with a pane of glass, 7 by 9, for the back side, by which an opportunity is afforded to learn the number and condition of the bees, with the amount of honey and of wax. Each of these boxes communicates with those on either side, as shown by the next figure.

Fig. 2. Fig. 3.

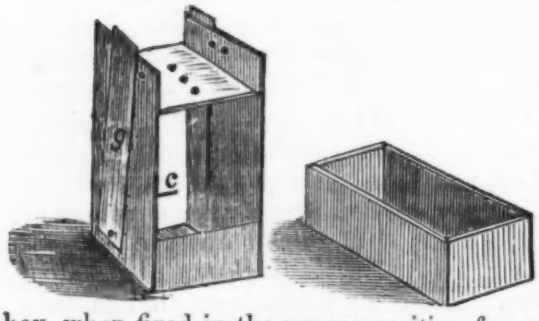


Figure 2 represents one of the large boxes. The slide, *g*, closes the communication between the boxes, which consists of a narrow slot a few inches in length, as seen on the interior, on the right side of the box. This slide turns upon a screw pivot near the bottom of the box. A slot on this side corresponds with that on the box, when fixed in the proper position for opening the communication.

Figure 3 is one of the small boxes, which is to be placed on the top of the

large or main box, and connects with it by means of the circular holes noticed in the second figure. This communication, however, we understand, is now formed like that in the side, this shape being found practically more convenient. The top of the small box is also covered with glass. When filled with honey, the large boxes contain about 30 lbs., and the small boxes from 8 to 10 lbs. each. The upper ones may be removed when filled, as also the large ones.

There is also a contrivance beneath the hive for securing ventilation by a large opening, into which is fitted a tin pierced with holes like the top of a pepper-box; another convenient arrangement for cleaning the bottom of the hive is secured by hanging nearly the whole width of the hive upon hinges, by means of which it may be let down and brushed without disturbing the boxes.

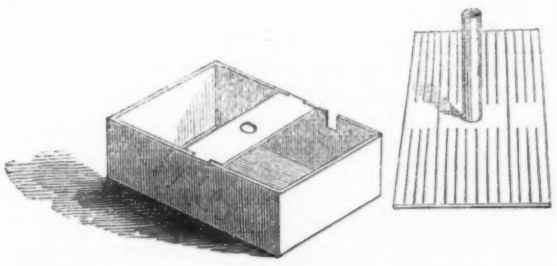


Figure 4 is an ingenious contrivance for feeding the bees, and thus for securing the manufacture of honey in the fall, when the flowers, &c., suitable for this purpose, have disappeared.

It consists of a box lined with tin, of nearly the size of these represented by figure 2, with a cross strip near the centre, in which a hole is bored. Into this box, a sliding cover or float is inserted, consisting of narrow strips of thin stuff properly fastened together, in the centre of which is inserted a tube of tin, which moves up and down through the hole in the cross-bar; and through this tube, when the float is raised by the hand, the food of the bees is poured into the box, and the float is then left to be supported by and upon the surface of the fluid. There is a passage, arranged like that already described, for forming a communication with the main box, when in its proper place, by its side. For this purpose, one of the large boxes must be previously removed. The bees will consume daily three or four pints of this food.

On the front side of the hive and of the bee-house, openings for ingress and egress are provided in such a manner as to secure, in the highest degree, a defense against moths and all other enemies; and they are so arranged that these bee-houses can be placed in a parlor or other convenient room, and communicate with the windows or other more convenient places for providing a passage out of doors. The house may be constructed of mahogany, or other handsome wood, and be made highly ornamental.

There is also a contrivance for getting rid of any moths that may have obtained an entrance into the box, which is not exhibited in these diagrams.

The patentee claims for it the following important advantages:

1. It is adapted to either large or small colonies, as the bees may be made to occupy from one to six boxes (or sections) as their numbers may require, and hereby give them at all times as much or as little room as they may need at each and all seasons of the year.

2. It affords the best facilities for observing the operations of the bees, for ascertaining the amount of honey stored, and the streng h and condition of the colony, without the least exposure to the bees.

3. The arrangement for removing the old brood combs, (so essential to keep a colony in health and vigor,) and for removing the surplus honey, are

equalled by no other hive, as the bees may be made to leave either box before removing it from its place in the hive.

4. It is decidedly the best non-swarming hive ever invented, as colonies may be divided and multiplied without the trouble and uncertainty of swarming; or swarming may be prevented, by giving ample room, and taking the surplus honey as fast as gathered.

5. It is also the best swarming hive, as the bees may be confined to a small amount of room during the fore part of the season, and thereby induced to swarm early, after which, more room may be given them, so as to prevent their clustering on the outside of the hive, and a much larger amount of honey obtained than in any other hive.

6. It affords the bees better protection against the ravages of the moth and miller, and the apiarian better and more effectual means to destroy them after they have entered the hive, than any other.

7. Each section is well ventilated, and the bottom, when closed, is proof against the miller, but, being attached by butts, may be let down and cleaned at pleasure.

8. The bees are better protected against the attacks of both robber-bees and millers in this hive than in any other.

9. It affords better accommodations for feeding either late swarms, or for obtaining honey, as the arrangement is such that for robbers to gain access to the feeding apparatus, they must enter a small passage at the spout, and pass directly through the main body of the hive.

And, in fine, it is warranted to give better satisfaction upon a thorough trial, than any other hive known.

Some two or three hundred of these hives have been in use during two and three seasons past, in the counties of Licking and Muskingum, Ohio, and several the past season in New-York and Massachusetts, and have given far better satisfaction than any thing of the kind heretofore known. And from the universal satisfaction it has given thus far, it is confidently believed that it will supersede all others for convenience, utility, profit, and all practical purposes. The first premium has been awarded this hive for three years in succession, by the Licking County Agricultural Society, where its merits are known. Also, the first premium and a diploma, by the Ohio State Agricultural Society, at their second annual fair held at Columbus, September, 1851. Address E. W. Phelps, Westfield, Ms.

Feeding Bees.—Now that we are upon the subject, we would say one word in reference to the subject of feeding bees. A writer in the last *Working Farmer* seems to imply that one pound of sugar will make about two pounds of honey. The folly of this statement leads the charitable editor to infer that he intended to say, that the giving them one pound to eat would excite in them such a disposition to work as would lead them to gather another pound elsewhere. But, however this may be possible, it does not tally with our notions of the fact: as we have been taught, we suppose that a pound of sugar will not make a pound of honey. The bees must consume a small quantity in nourishing themselves. Every motion wastes the organized matter of any living thing, and with the activity of bees in summer, a large hive must consume much in a season.

Mr. Phelps tried an experiment on this subject with the following result: "He selected three hives in the fall, of about equal strength: one of them he fed with his feed, costing $1.20, and weighing about 18 pounds, exclusive of water, which was consumed in ten days. The fed swarm gained 11½ pounds,

while the other swarms lost each about 3½ pounds, making a difference of 15 pounds, and showing about 6½ pounds of food consumed by the working hive, while the idle hive consumed only 3½ pounds. In their torpid state in the winter, it is not considered safe to leave a strong hive with less than 15 pounds of food for the season. In the summer, they must necessarily consume several times this quantity. Hence only a part of what they collect is converted into honey."

Another writer in the same journal, a Mr. Smith, says: "Whatever bees *collect* and deposit in their comb, undergoes *no change* in consequence of any thing they do to it. If they are fed with molasses, they deposit molasses, &c." This must be incorrect. Pure molasses, in our opinion, was never found in a bees' comb. The notion must have obtained credence under the discarded doctrine that honey is merely *collected* by the bee. The doctrine now universally believed among intelligent apiarists is, that honey is a secretion of the bee, just as essentially as perspiration, &c., in other animals. "*In* their comb," implying that the comb itself is not a mere deposit. But it is quite as credible that the comb should be *collected* as the contents of the comb. The food of a bee materially affects the quality of the honey, without doubt. The peculiar essential characteristics of food affect the various secretions, to a greater or less extent, with all animals. We are persuaded that this idea of secretion in distinction from *deposit*, is something besides "imposition, cant, and humbug," notwithstanding the assurance of the writer we have quoted.

RECIPROCATING AND ROTARY MOTION.

This invention, as described by Mr. Howard, consists of a wheel having sixteen cross-bolts in its periphery, so arranged that the jaws of four levers can play alternately upon them. This wheel—or a system of arms with cross-bolts, arranged in a similar manner if preferred—is put on the main shaft instead of a crank. The four levers that play upon the bolts are as long as half the diameter of the wheel; one end of each is furnished with a slit or jaw, the other moves on its respective axis. Two of them have levers at right angles permanently attached to them, which move on the same axis; and to these, at the distance of half the diameter of the wheel from the axis, the other two levers are attached by two short connecting rods. The two right-angled levers are worked by two short pitmans connected to two piston rods, by which the whole is put in motion. The pitmans have a similar stroke to that which would result from two cranks working at right angles to each other; by this motion, one of the jaws, at all times, has its strongest hold on the wheel, while two of the others are changing points, which is effected in a moment; so that two jaws—one from each piston—are almost continually playing on the wheel, and carrying it around with a regular, steady motion.

The right-angled levers to two of the jaws above named are comparative to the crank now in use; and if they are four feet in length, they throw a power on the water-wheel, equal to that thrown on it by a four-feet crank; but instead of requiring an eight-feet stroke of a piston to do it, this apparatus requires a little less than three. An eight-feet crank requires a sixteen-feet stroke; but with an eight-feet lever, equivalent to an eight-feet crank, this apparatus requires but a six-feet stroke. And so, under all circumstances, the stroke of the piston is a little over one fourth less than the length of the

moving lever; and by lengthening this lever, the water-wheel can be made as large as necessary without deranging the position of the cylinder; and the wheel can be turned backwards or forwards, by simply reversing the motion of the pistons, there being no dead points or centres. The space occupied by Mr. Howard's apparatus is governed by the diameter of the wheel. If that is eight feet, add four more for the levers, four more for pitmans, and three for the cylinder, which in all make nineteen feet.

The objects intended to be accomplished by this invention are these, viz.:

1st. To save the power which at present, according to Mr. Howard's belief, is lost on the crank, and which he estimates at nearly one half, whether the machinery is propelled by steam, air or electricity. He attributes, in a great degree, the failure of Prof. Page's electro-magnetic engine to the loss of power occasioned by the crank now in use.

2d. To prevent machinery from being jerked to pieces by the tremendous power thrown on the crank, when it attains a right angle with the pitman or with the connecting rod, which is necessary to carry it over the dead points. This invention proposes to do away entirely with the danger and delay consequent on the breaking of the crank or main shaft, which is often, if not always, the effect of this sudden expenditure of power.

3d. To prevent the driving-wheels of locomotives from slipping on the rail, which is caused by the jerk of the pitman or connecting rod, when the crank attains a right angle to it. Any observing man knows that a train begins to lag so soon as the motive-power ceases or grows weak; and then, at that time, to give a jerk, as the pitman does, when it has its greatest force, it must often cause the driving-wheels to slip on the rail; particularly if the train is ascending a plane. There can be no doubt but that trains could ascend much higher grades than they now do, if they were propelled by a regular, steady motion or pressure.

Mr. Howard has not the means of testing his invention on a practical scale himself; but offers to give a large interest in it to any person who will advance the means necessary for that purpose.

WHEN TO USE LIME AND PLASTER.

Gen. Bierce, of Akron, a successful cultivator, has recently contributed the following valuable suggestions to the *Summit Beacon:*

The value of lime or plaster, as a manure, depends upon the component parts of the soil to which it is applied. All land has more or less sulphuric acid in it, caused by the decomposition of *iron pyrites.* The presence of this acid may generally be known by the appearance of the soil, and particularly of the stones. If there is any iron rust, or *oxide* of *iron*, in the soil, or in the stones, or on the top of the water that filtrates through the soil, or if the water is *hard*, it indicates the presence of sulphuric acid.

If land on which grass seed is sown is "slow to catch" or sod over, or catches in *patches*, it indicates the presence of sulphuric acid.

If the roots of clover and herds-grass in the spring stand two or three inches out of the ground, and in detached parcels, with bare ground between, it is the work of sulphuric acid. On such land plaster is a positive injury.

If clover and tame grasses die out, and are succeeded by *wire grass*, sorrel or sour dock, it is caused by sulphuric acid. Put on lime and keep off plaster.

The reason why plaster should not be used on land charged with sulphuric

acid is, that plaster is composed of lime and sulphur, and applying that is adding more of that with which the land is already overcharged. On such land apply *lime*, which unites with the sulphuric acid, and forms plaster. The lime thus neutralizes the acid; and the acid thus neutralizes the lime, and forms a compound nutriment for vegetation.

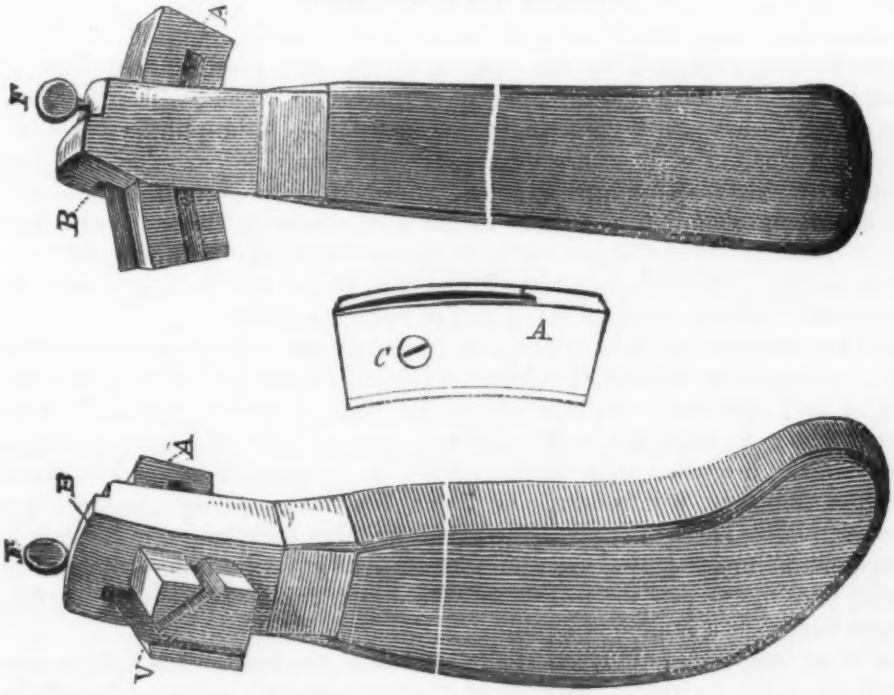
The reason why the ground appears so hard where the earth is charged with sulphuric acid is, that the old stubble has been *eaten up* by the acid.

The sulphuric acid in plaster, applied to land not overcharged with that substance, *decomposes* vegetation, and fits it for nourishing the living plants. When there is an excess of the acid, it *eats up* the vegetation, both dead and living. This is the reason why soils overcharged with the acid are always deficient in vegetable matter. And soils free from it have an excess of vegetable matter in a decomposed state.

The presence of this acid is the cause of sorrel and sour dock and sour grass. The land is literally sour, and Nature is trying to throw it from her stomach, through these excrescences.

The rule then is, if your land has too much sulphuric acid, *or is sour*, give it a good coat of lime; if destitute of acid, apply plaster.

THE EDGE-PLANE.



This is a useful instrument for shoemakers. It can be used without any danger of cutting the upper-leather of a boot or shoe, since, whatever may be the thickness of the sole, it can be set to a suitable width. On the other hand, it will cut a high heel in a truer and more tasteful manner and in less time than it can be done with a knife.

A is the slide that contains the knife, and which passes through the mortise. V is the aperture through which the shavings pass off. F is the

thumb-screw that fastens the slide. B is the corner, so bevelled as to give the knife a drawing-stroke.

A is a view of the slide removed from the mortise; C is a screw which fastens the blade.

The curved handle gives a side view, and the straight handle a front view of the instrument.

This is the invention of Mr. Nicholas Bucher, of Weedsport, Cayuga county, N. Y., who has for sale the right for all the States and Territories except New-York. He has also the instruments on hand, for sale. The Edge-Plane was patented November 1, 1852.

CAUSES OF PHOSPHORESCENCE IN THE SEA AND OF ANIMALS.

The March number of that very learned and able Review, the *American Journal of Science and the Arts*, contains an article on the Phosphorescence of the Sea and of some Marine Invertebrata. Different opinions have been entertained as to the nature of this light. Nollet regarded it as a modification of electrical light. Bajon also considered it as due to the electricity of the waves. Others have attributed it to phosphorus, or to bubbles of hydrogen which rise to the surface and explode. Some regard it as analogous to the phosphorescence of the diamond after exposure to the sun. One other opinion is, that it is owing to what the animal has absorbed from the rays of the sun, which they throw out again in the dark; another, that it is a kind of combustion, sustained by the oxygen of the air; another, that light is taken in with the food, and disengaged by particular organs. The phosphorescent matter has also been considered as composed of phosphorus and albumen, the variations of light arising more or less from the coagulation of the albumen, which may be increased or diminished at the will of the animal. Still another explanation is, that it is due to the nervous fluid, concentrated and modified by certain organs, so as to appear under the form of light.

Our author attributes the phosphorescence of the sea, in many cases at least, to the decomposition of fishes and of marine animals.

But it is discovered, of late, that living animals have the power of emitting light. Since 1805, Viviani, Professor of Natural History at Genoa, has discovered and described fourteen species of phosphorescent animals. Our author, whom we condense in this abstract, gives us a list of 9 sorts of insects, 2 myriapoda, 6 crustaceæ, or shell animals, 5 mollusks, 2 echinodermata, 5 acalepha, 5 polypi, 6 infusoriæ, and 7 annelida, whose phosphorescence has been established, and he regards the list as far from complete.

In some animals, the process seems to be a slow combustion, analogous to that of phosphorus exposed to the air. Others, as the medusæ, (sunfish,) &c., appear to secrete a luminous liquid.

In other instances, as in some of the crustaceæ, the seat of this light is supposed to reside in glands, variable in number, situated on the sides of the thorax, and that the light is emitted when they are irritated, or at the time of procreation.

The phosphorescence of spongodium and of algæ (sea-weeds) in general, are supposed to owe their appearance to the luminous animalculæ adhering to their surface.

Our author concludes his learned treatise by suggesting that light is produced in living animals—1st, By the secretion of a peculiar substance, exud-

ing either from the entire body, or from a special organ, in which the light is the result of a slow combustion; and, 2d, By a vital action which results in a pure light, independent of all material secretion.

NEW BOOKS.

The Miseries of Human Life. An Old Friend in a New Dress. New-York: G. P. Putnam. 1853. pp. 182.

This reprint of an old book, we think originally from the English press, will recall many hearty and *wholesome* shakings, not of the sides merely, but of the entire corporeity, in which the readers of those days, *nolens volens*, took a *decidedly* active part. Some of the information conveyed in these pages is of no mean importance. A hungry man, who comes home for his supper after the table is cleared, will be glad to learn that even the *tea-table* becomes eatable when the tea (t) is taken off. If any of its readers should be inclined to be fastidious, they might call some of it nonsense. Most likely, however, they will generally be more modest, and say, with the author's *bachelor* friend, "I am not the man to take upon myself any heirs (airs.)" But to give a fair specimen of the *fare* served up in these pages would require a third reprint, and an attempt to do this otherwise would insure an entire failure, like that which happened to another friend of our author, who went "to meat with some friends," but who did, in fact, only "meet with difficulties." We might enlarge, but forbear, for bare want of space. Go and buy the book, and you will laugh, we repeat it, *heartily* and *decidedly*. One who has a tendency to azure hues can get no better advice than this: Read "The Miseries of Human Life." The price is only that of a generous box of pills, while, of the two, the book will often be found far the more efficient.

Practical Treatise on the Culture of the Grape Vine, &c. By J. Fisk Allen. Third edition, enlarged and revised. New-York: C. M. Saxton. 1853. pp. 330.

Here is a volume of instructions suitable for grape-growers on a large scale, or for those who are willing to incur whatever expense is necessary for the successful culture of the more tender varieties. The whole subject is discussed in a practical, business-like style, and, to a great extent, the result of his actual experience for several years. Mr. Allen is remarkably successful in this branch of horticulture. We never saw or tasted finer grapes than those we have eaten from his vines. So thoroughly has he gone into this business, that he can furnish you, we doubt not, by the aid of his forcing and retarding-houses, with fresh grapes nearly or quite every month in the year. The mode of doing this, including the form and construction of grape-houses, their furnaces, &c., the preparation of the soil and its appropriate manures, planting the vines and their subsequent training and treatment for successive years, the growth of seedlings, &c., &c., is concisely described. This is followed by lists of a great many varieties, with their specific characteristics. A few pages are devoted to the out-of-door cultivation of the vine. The price is only one dollar.

The Illustrated Magazine of Art. New-York: A. Montgomery, 17 Spruce street.

We have once before made formal mention of this new monthly. Nos. 3 and 4 have appeared, and abundantly sustain the high reputation we then claimed for it. The engravings, which are very numerous, are excellent. The imperfections of "some of them," before noticed, we discover to be the work of the printer, and not the fault of the engraver. It assumes quite a scientific character. Principles of philosophy, the lives and productions of some of the great artists, discoveries in Egypt, &c., &c., give it a permanent value. The narrative, tale, romance, &c., have also their share of its pages. Price 25 cents a number.

American Florist's Guide. New York: C. M. Saxton.

This very useful little volume consists of two parts. The first is *The American Rose Culturist*, giving very full and satisfactory information of the numerous varieties of this queen of the flowers; also full directions for the treatment of the dahlia. This part forms one volume of *Saxton's Cottage and Farm Library.* The second part consists of

Every Lady her own Flower Gardener, and gives full and plain instructions in reference to the selection, preparation, and cultivation of the flower garden, and also of flowers in rooms, with a long list of annuals, perennials, &c., and their mode of culture. It is from an English work, and has been "adapted to the use of American ladies." In the monthly notices, containing monthly directions as to the work to be done and the manner of doing it, this adaptation is not quite so thorough as it might be for ladies as far north as New-England and New-York; but this is of minor consequence. The succession of the work to be done is as it should be. The whole is a most excellent manual, and one that was very much needed, and will, no doubt, secure a very extensive circulation. It costs but seventy-five cents.

Putnam's Monthly.—The more we examine this work, the higher is our estimation of it. It is an immense stride above and beyond the popular literature of its predecessors of years gone by, which last, under the power of the three-fold cord now *composed* by Putnam, Harpers and Montgomery, are doomed to a speedy departure. They were superior to their predecessors, but we scarcely know how to change for the better the secular reading presented in the works here referred to.

Harper's New Monthly Magazine for April, as usual, is full of well-written articles. handsomely illustrated. It contains a large share of historical matter, of great import ance and full of interest. The Mormons are more fully described, in their rise, progress' movements, belief, and, last and not least, their immoralities, than we have seen in any similar work. Napoleon Bonaparte, Notes from the Copper Region, and other and lighter articles, give a sufficient variety, and altogether are quite up to the high standard claimed by the publishers.

The Mother and her Offspring. By Stephen Tracy, M. D. New-York: Harper & Brothers. 1853. pp. 360.

No book within our knowledge on this subject compares with this for its freedom from foolish whims, and its complete fulness, and at the same time the perfect propriety of its instructions on topics of interest to the young mother, and to her who is about to become such. Without attempting to instruct the regular physician, it affords all the information that can be given in case such assistance cannot be had.

The Cold Grapery, from direct American Practice. By Wm. Chorlton, Gardener to J. C. Green, Esq., Staten Island. New-York: J. C. Riker. 1853.

This little volume, as neat as possible in its execution, gives "a concise and detailed treatise on the cultivation of the exotic grape vine, under glass, without artificial heat." The work is well illustrated by diagrams, and is every way worthy the attention of our country friends who would become grape-growers. It enables almost any one to erect his house and cultivate foreign grapes at comparatively a very trifling expense. We have availed ourselves of the aid of this little manual on p. 273 of this number.

A Child's History of England. By Charles Dickens. Vol. I. New-York: Harper & Brothers. pp. 285.

This little volume commences with the reign of Alfred, and concludes with that of Henry V. The style of it is appropriate, of course; the narrative is judiciously selected, and the execution of the book every thing it should be.

Louis XVII. of France, the Bourbon Prince. The History of the Royal Dauphin, New-York: Harper & Brothers. 1853.

A most interesting narrative of events happening at one of the most important periods of French history. The subject naturally brings to view more of the private movements of the royal family than would be expected in a general history. The sufferings of the Dauphin, whose character is quite remarkable, were intense. Whether it was the Dauphin who actually died and was buried, is a matter we are not inclined to discuss. It is not a question to be decided in a moment, or by reading one side of the story.

AGRICULTURAL RECORD.

First Use of Mahogany in England.—Doctor Gibbons, an eminent physician in the latter end of the last and beginning of the present century, had a brother, a West India captain, who brought over some planks of this wood as ballast. As the Doctor was then building him a house in King street, Covent Garden, his brother thought they might be of service to him. But the carpenters finding the wood too hard for their tools, they were laid aside for a time as useless. Soon after, Mrs. Gibbons wanting a candle-box, the Doctor called on his cabinet-maker (Woollaston, in Long-acre) to make him one of some wood that lay in his garden. Woollaston also complained that it was too hard. The Doctor said he must get stronger tools. The candle-box was made and approved; insomuch that the Doctor then insisted on having a bureau made of the same wood, which was accordingly done; and the fine color, polish, &c., were so pleasing that he invited all his friends to come and see it; among them the Duchess of Buckingham. Her Grace begged some of the same wood of Dr. Gibbons, and employed Woollaston to make her a bureau also; on which the fame of mahogany, and of Mr. Woollaston, were much raised, and the wood came into general use.

Elijah M. Reed, of Tewksbury, says that he is now making butter from his Ayrshire cow, and obtains one pound from *four quarts* of milk! She was on exhibition at the Middlesex Show in October last, and was then an animal of fine appearance. One cow producing this amount must be of as much value as two (at least) ordinary cows.

The cost of lighting the city of New-York last year was $269,068. The number of gas lamps now erected is 8,884; of oil lamps, 15,007. There are also enough gas pipes laid in the city to supply 1400 additional gas lamps.

Agricultural Implements in England.—An account of the agricultural implements exhibited at the Smithfield Club Cattle Show is given in the *Journal of the Society of Arts*. The following notice of the improvements in the manufacture of Hussey's Reaper will be read with interest by those who have turned their attention to the perfection of machines of this character:—

"Taking advantage of the inventions of our brothers across the water, they have registered some improvements in Hussey's American Reaping Machine, which bid fair to make that hitherto useful machine still more complete. In the machines brought over from America, the cutters were bevelled on both sides, similar to a common axe, which was found, in cutting soft straw crops, such as barley and oats, to have the effect of bending the straw between the iron guards in which the cutters work, and pulling it instead of cutting it. The improved form of cutter is bevelled on one side only, similar to a pair of shears or scissors; and, cutting against a keen square-edge guard, made of steel, this defect has been completely remedied, and crops of any kind may now be perfectly cut with equal precision and facility. Two horses, one man, and a lad, will cut about an acre per hour."

Oregon or California Pea.—A writer in the *Southern Planter* says:—We have planted the California pea since 1846. It makes fine food for stock, is not liable to cast its foliage, as the cow pea does when it begins to fruit, but keeps green and luxuriant till frost. It is very hardy, and will stand almost any sort of treatment. The pea will lie in the ground all winter, and come up in the spring. It rarely falls down, unless the soil is very rich, and looks not unlike the cotton stalk. We always replant all missing places in our cotton beds with it before we lay by. It is the best chicken pea in the world, for an old cock has only to strike a bunch of pods with his bill when they get ripe, and down comes a shower of small shot, fit food for young and old.

Skinning a Pear Tree.—W. S. Lyles, in the *Soil of the South*, Columbus, Ga., says he stripped a favorite pear tree entirely of its bark, from the limb to the root, on the 21st day of June, and "it neither wilted a leaf nor dropped a pear; but ripened the latter, with which it was loaded, to perfection. It has now [no date] a fine coat of smooth, young, glossy bark, except on a few spots, where the knife happened to strike the wood." Mr. L. thinks this operation will rejuvenate old trees.

Special Manure for Grapes.—The Wine Committee at the exhibition of the Cincinnati Horticultural Society, reported that of two specimens of wine, one from grapes to which a special manuring of potash had been given, the wine from the manured grapes was bright, clear, and mellow, like an old wine. The other was declared to be less matured in all its qualities, nor was it

clear. The grapes themselves, from the two portions of ground, were also presented to the committee. "Both were delicious and well ripened, but it was considered that those from the manured land were sweeter, and that the pulp was softer."

If you want to keep horse-radish, grate a quantity while the root is in perfection; put it into bottles; fill the bottles with strong vinegar, and keep it corked tightly. You may thus have a supply at all seasons.

Improved Straw-cutter.—Measures to secure a patent for the above have been taken by Hiram Haight, of Nassau, N. Y. The improvements consist in the employment of an adjustable feed gearing, by which the quantity of straw for the cutter can be supplied with greater or less speed, as required, and using, in connection therewith, an elastic pressure bar for holding firmly the stalks of straw at the edge of the feeding trough when about to be cut. The adaptation for feeding consists of two corrugated rollers placed one above the other, passing transversely through the feeding trough, and furnished with pinions that gear into each other. The pinion of the upper roller is moved by a pawl and spring, which are actuated by a rod connected to the treadle of the machine, the lower roller of course revolving in an opposite direction to the upper. Another pawl prevents any backward motion of the pinion. The velocity of the rollers and consequent rapidity of the feed are regulated by an adjustable pin, which, projecting from the rod, receives the up stroke of the treadle. The pressure bar is connected with the treadle by means of a rod, and the force exerted by it in keeping the straw in its position before the cutter is modified by a spiral spring underneath.

Good Crop.—Mr. George D. Leonard, of Norton, Mass., raised, the past season, one hundred and three bushels and a half of shelled corn, on one acre of land. The field was enriched with manure made from two horses and two hogs, ploughed twice, harrowed thoroughly, planted about the first of June, and hoed twice. Three cords of pumpkins were harvested from the same acre. Value of the whole crop, $107.86; expense of raising, $48.50; net profit, one acre of ground, $59.36.

Evergreens require, generally, a light rich loam. The best manure is that which will best change the soil, in each instance, to that of its primitive condition. Perhaps a compost of sand and peat, with some alkalies to correct any acidity that may be in the peat, will be the best application.

List of Patents Recently Issued.

Bedstead Fastenings.—By Asa N. & Alden Case, of Gustavus, Ohio: We do not claim the pawl and ratchet, but we claim the combination of the inclined plane and head with the pawl and two ratchets, for the purpose of fastening bedsteads and tightening the cord, as specified.

Swivel-nibbed Keys for Door-locks.—By A. C. Harig, of Louisville, Ky.: I am aware that the nib of the key has been fitted into the tubular shank, and so secured therein by a pin fitting into a groove that the burglar's instrument, when applied to the nib, would rotate it without moving the key; also that the key, by a plate attached to the inner lock plate, has been held so that it could not be rotated; but I claim the guard bit attached to the swivel nib in combination with the ordinary bit and shank of the key, constructed and operating as set forth.

Rotary Steam Engines.—By James McKay, of Philadelphia, Pa.: I claim the passages for the exhaust steam, arranged so that they shall cover and encircle the entire periphery of the stationary cylinder, and have their ingress and egress openings so arranged as to cause the exhaust steam, as it escapes, to envelop the whole surface of the cylinder, as described.

In combination with the ordinary valves and ports which form a passage for the steam to and from the engine, I claim the supplemental exhaust ports and valves, which act in conjunction with the ordinary exhaust valves, whereby a free egress for the exhaust steam is afforded without leaving large open passages for the steam to waste in.

Also, the combination of the sliding pistons, with self-adjusting valves and steam-ways, which admit a portion of the steam that propels the piston behind its inner end, to act as a spring to press it out into the steam space, whichever way the engine may be turning.

Also mounting or hanging the two cylinders on radial and axial journals, respectively, arranged in a common plane, and at right angles to each other, whereby the two cylinders can accommodate themselves to each other, so as to avoid binding, as set forth.

Machine for making Axes.—By Jonas Simmons, of Cohoes, N. Y.: I do not claim the employment of rolling dies for shaping an axe; but I claim the arrangement of the rolling dies with a rest bar to support the iron whilst being rolled, and an eye bar, arranged not only to serve as a mandrel to shape the eye of the axe, but with the rest bar to hold the iron firm during the process of rolling; the rest bar and eye bar being connected with the machinery, to give them appropriate movements, to cause them to coöperate with the rolls in shaping the axe, and these parts, further in combination with a scarfing bar, for the purpose of shaping the blade to receive the steel point in order to complete the axe, substantially as set forth.

Supplemental Valve in Reciprocating Steam Engines.—Chas. A. Spring, of Kensington, Pa.: I

claim the arrangement of a valve in the lid of the steam chest, or the equivalent thereof, between the cylinder of a steam engine and the boiler, in such manner that it will prevent the reflux of the lead steam, by closing, whenever the pressure of the steam in the engine excludes that in the boiler, and opening again whenever the pressure in the boiler is greater, substantially as herein set forth.

Looms.—Wm. Townshend, of Hinsdale, Mass.: I do not claim actuating the pickers by the backward motion of the lay alone, but, first, I claim the cam-wheel on the chain shaft, right-angle lever, and staples or slide bolts combined and acting as described to bring the picking motion into operation alternately on each side by the backward motion of the lay as specified.

Second, actuating the picker staffs by the lay on its backward motion by means of the vibrating studs, when combined with levers attached to the swords of the lay, and two bent levers, arranged and combined in the manner described.

Third, the two levers are connected together by the adjustable pin so as to give greater or less motion to the selvage warp, when actuated by the cam as described.

Fourth, the apron or straps connected to the bar, and kept to the cloth by proper weight or power, so as to cause sufficient friction to wind the cloth on the cloth-beam, when said apron and bar are moved or actuated from the lay or otherwise, so as to produce the effects herein described.

Bedstead Fastenings.—E. Sumner Taylor, of Cleveland, Ohio: I do not claim separately the pawl and ratchet, nor a continuous right and left hand screw, but I claim the combination of the pawl and ratchet with the spiral grooved sections attached to the tenons, arranged and applied in the manner and for the purpose herein specified, namely; the tenons of one side rail and one end rail being furnished with the plate, having the spiral groove turning to the right and left as described, making a tight joint with the post; the other side and end rails having on their tenons a groove, passing around the tenon at right angles to the axis and fitting the pins, as described, so that by having one side of the tenon on each end flattened to enable it to pass the pin, in order to allow it to enter the groove, when by turning, in either direction, less than a complete revolution, the pin fitting into the groove prevents the posts and rails from separating, and by attaching the ratchets to the end of this side rail and one end of the end rail, with the pawls attached to the posts, as specified, by tightening of the cord put on in the manner described, the whole frame of the bedstead is held firmly together by the combined action of all the parts described, one end rail and one side rail remaining stationary, the other end rail and side rail turning as described for the purpose of tightening the cord, both being secured by the pawl and ratchet.

Currycombs.—By Wm. Wheeler, of Troy, N. Y.: I claim the application of a ring, loop, or fixture on currycombs, for the insertion of a thumb as a guard and rest therefor, the ring or loop being made in one piece with the back strap, as set forth.

Printing Presses.—By Seth Adams, of Boston, Mass.: I claim, first, the combination of the vibrating platen with the sheet holders, arranged as specified, so as to be kept up a little distance from the platen when in position to receive the sheet, and moving with said platen to the form, in order to hold the sheets thereon and draw them from the types, also with the gauges for registering the sheets.

Second, the mode for keeping the sheet holders up from the platen when the sheet is to be placed. Said means consisting of an arm on each end of the rod (on which said holders are fixed and with which they turn) and stops against which said arm strikes; the arrangements and operation being substantially as set forth.

Third, the apparatus for delivering or taking off the sheets from the platen after it is printed, consisting of the moving or sliding tympan cloth, in combination with the turning segment, to which an intermittent and reciprocating rotary motion is imparted by the catch, ratchet, and spiral spring, operating as specified.

Cane Juice Evaporators.—By Henry Bessemer, of Baxter House, England. Patented in England, Feb. 24, 1852: I claim the combination of a hollow and perforated shaft, connected with an air blast apparatus, a series of plates, or a screw plate, (placed around and on the shaft,) and a reservoir, trough or basin, for holding the liquor to be evaporated.

Also, the combination of a hot water vessel and its heating apparatus, the cistern for holding the saccharine liquor and the apparatus for effecting its evaporation by means of hot air blown on thin or extended surfaces, a screw or plates, as specified.

Filters for Cane Juice.—By Henry Bessemer, of Baxter House, England. Patented in England, Feb. 24, 1852: I claim the combination of the receiving vessels, rotating filtering drum, (placed within the said vessel,) gutters, (within the drum,) the hollow axle or shaft, (connected with said gutters,) and the scraper applied to the outer surface of the revolving drum, the whole being arranged and made to operate together, substantially as specified.

Breaking and Dressing Flax.—By S. A. Clemans, of Springfield, Mass.: I do not claim simply the double action of beaters, as that is well known in a great variety of machines for various purposes.

What I claim is the method of breaking and dressing flax or other fibrous substances, by a beater constructed in the manner described, (vibrating on a central axis,) between the faces of which the flax, &c., passes as described, when this is combined with one or two pairs of rests placed in close proximity to the edges of the beaters between which the flax passes, as specified.

Also, in combination with the beater and rests for breaking and dressing, as described, the employment of a pair of rollers, each of which is grooved in the direction of its periphery, and one of which is made to vibrate in the direction of its axis, for the purpose of opening and softening the fibres, as described.

Magnetic Machine for Washing and Separating Gold.—By Samuel Gardiner, of New-York city: I do not claim to have invented a rotary cylinder of magnets, for the purpose of separating magnetic particles from ores or metals; but I claim separating gold or other metal from earthy and magnetic particles, by means of a rotary cylinder of magnets, which magnets, at the same time as they collect the magnetic particles, serve as agitators for agitating the water, and the metal, and earthy and other foreign matter which is mixed, for the purpose of washing away the said earthy and other foreign matter, the said cylinder of magnets being constructed and arranged in relation to the trough, containing aforesaid mixture in any way, substantially as set forth.

Daguerreotype Cases.—By J. F. Mascher, of Philadelphia, Pa.: I do not claim the invention of a stereoscope, for that has been previously discovered; but I claim constructing a daguerreotype case with an adjustable flap or supplementary lid, said flap or lid being within the case and having two ordinary lenses placed in it; by which, upon adjusting the flap or lid, a stereoscope is formed of the case, and the two daguerreotypes, by binocular vision, are apparently formed into a life-like figure.

(This is a very excellent improvement, well worthy the attention of daguerrean artists.)

Moulding in Flasks.—By L. A. Orcutt, of Albany,

N. Y.: I claim, in combination with a flask having a continuous or reciprocating rotary motion, the rammer or rammers, so arranged as to be made, at any time during their operation, to work in any portion of the flask, whilst, at the same time, they have an automatic adjustment, so as to rise as the flask is filled and rammed, and adjust themselves vertically in regard to the flask, the whole being accomplished as described.

Moulding for Cast-iron Plates.—By Thaddeus A. Smith, of Albany, N. Y.: I claim the process of moulding the recesses in the tops of stove plates intended for the reception of the lifters by which such plates are handled,(which recesses are required to be dovetailed,) by employing pattern cups, shaped to form such recesses, divided by a vertical cut into two parts, so that the said cups can be removed from the core formed by them, by moving each division of it horizontally from the core before raising it off the sand, and by fitting the cup pattern into the pattern of the stove plate, so that the plate pattern can be lifted from the sand, leaving the cup behind it, as set forth.

Machines for Dressing Shingles.—By Joel Tiffany, of Cleveland, Ohio; I claim the combination of parts consisting of the pinions, with the intermediate gears. The levers and joint levers and sections, with the connecting rods, and cam, for the purpose of operating the arms, as described, turning and removing shingles, at the same time, from one side of a reciprocating bed to the other, and then, when its second face is dressed, throwing it from the machine in a finished state.

Cannon Sight.—By John A. Wagener, of Charleston, S. C.: I claim the sighting apparatus, consisting of the corresponding pendula, as described, hung between the graduated side-pieces or uprights, in connection with the protecting and regulating slide, with its rifle sights, said pendula having free sway, by means of the rotary mounting of the uprights and upper part of the apparatus on the screws and pivots, and the whole being attached and shifted into horizontal position on the cannon by means of the movable spring clasps, all constructed and combined as set forth.

RE-ISSUE.

Splints for Fractures.—By Adam Hays, of Pittsburgh, Pa. Patented Aug. 13, 1850: I claim the cutting out a portion of the splint, to afford an opportunity for dressing as often as may be necessary, the upper and lower portions of the splints being kept firmly united by means of the brace, so as, by extension and counter extension, to keep throughout the treatment the proper relative position of the parts concerned, the slide being replaced after each dressing; or any other device substantially the same.

Turning-lathes.—By Warren Aldrich, of Lowell, Mass.: I claim, first, the improvement described, which consists in giving an automatic motion to the upper slide or tool rest, when set on any angle to the bed-piece of the lathe, instead of moving it by hand, so as to turn, with ease and accuracy, solid or hollow cones, as set forth, by means, substantially, of the screw, revolving worm shaft, and revolving plate, as set forth.

Expressing Sugar-cane Juice.—By Henry Bessemer, of Baxter House, England. Patented in England, Feb. 24, 1852: I claim the improvement of constructing each of the cane-pressing tubes, substantially as specified, viz: with sides made parallel some distance, (for the working of the piston against,) and to approach one another towards the mouth of discharge of the pressed cane, whereby advantages as mentioned are gained.

Also the combination and arrangement of the compresses, or pressing tubes, and two conjoined pistons, with one revolving, actuating shaft, and its mechanism, to give to their plungers or pistons a simultaneous reciprocating rectilinear motion, all as mentioned.

Heaters for Sugar-syrup.—By Henry Bessemer, of Baxter House, England. Patented in England, Feb. 24, 1852: I am aware that in locomotive engines water has been heated by standing in tubes exposed to the flame or direct heat of a furnace; now such a mode of heating will not answer for the treatment of the saccharine syrup, as the heat of a furnace is not susceptible of regulation, as is that from steam, the latter not burning the syrup, or injuriously heating it, as would the former.

I have discovered that the heat of steam applied to syrups, as described, in connection with the action of gravity, produces advantages, in rapidly heating the syrup, unattainable by any process, when the syrup is passed through pipes heated by direct heat, or the flame of a furnace.

It is, therefore, that I expressly disclaim the mode of heating water, by allowing it to flow through a stand or tube, heated by the direct heat of a furnace, but base my invention of the method described of treating saccharine syrup, by means of the apparatus represented, as arranged and constructed to operate, for the purpose set forth, by the power of gravity and steam, the same consisting of a combination of the receiving vessel, series of tubes, a chamber and pipe, and the steam chamber, having induction and eduction pipes, as specified.

Topping-lift and Peak-halyard Block of Sail-vessels.—By Wm. & S. G. Coleman, of Providence, R. I.: We claim supporting the topping-lift by means of a crane of such form and construction, that when the topping-lift sags, when the sail is hoisted, it shall not foul or chafe against the peak-halyard block.

Also, so arranging and constructing such crane, that it may also support the peak-halyard block, as specified.

Rocking-chairs.—By Peter Ten Eyck, of New-York city: I claim in combination with a sitting-chair, so arranged that the seat may rock upon the legs, or support the safety-piece or guard, hung eccentrically to the pivot of the bar on which it rests, and the spring for preventing the top part of the chair from rocking too far or too suddenly, as described.

Knitting Machines.—By Moses Marshall, (assignor to W. Aldrich & L. B. Tyng,) of Lowell, Mass.: I claim, first, connecting the rotary depressors and the feeder which carries the thread with the arm which connects the reciprocating cam bores, as described.

Second, dividing the plates which support the needles and cast the stitches at the angle of intersection of the two sets of needles, so that the fabric knit will or may pass between them.

Third, forming the stitches alternately on each side of the needle rests, by two sets of needles placed at an angle to each other, and operating one needle at a time, as set forth.

RE-ISSUE.

Self-acting Mules for Spinning.—By Wanton Rouse, of Taunton, Mass. Patented originally Nov. 2, 1852: I claim, first, governing the revolution of the spindles in winding the yarn on the cop, also in backing off during the progressive stages of the building, by means of a cam or any equivalent device, of irregular form, circumferentially with the said irregularity, varying from end to end, the said cam or equivalent being caused to operate upon the mechanism which drives the spindles, in any way that will produce the results set forth.

Second, the mechanism for causing the finger through which the irregular surface of the cam or its equivalent acts upon the mechanism which drives the spindles, in backing off and building on, to traverse the said cam, and to be kept close to its surface, consisting of the screws, nut, cord or chain, lever and stud, operating in combination, as set forth.

MILLS AT PATERSON, N. J.

FOR SALE OR TO LET, the COTTON MILL, LOT, and WATER PRIVILEGE, known as the Essex Mill. For Particulars inquire of

JOHN COLT,
President of the Paterson Manufacturing Company.

Also, the MILL, LOT, and WATER PRIVILEGE, formerly occupied by Plummer Prince as Print Works. For particulars apply to

THOMAS O. SMITH,
Agl. Society U. M.

Paterson, Dec. 28th, 1852. [Jan. '53-3m.1505.]

PATENTS, INVENTIONS, &c.

J. H. BAILEY, Agent for the procuring and sale of Patent Rights for this country, Great Britain and the Continent.

MECHANICAL DRAWINGS.

Mechanical and Architectural Drawings executed in all kinds of Perspective, with dispatch and at moderate prices. Office, Tryon Row, No. 5, opposite City Hall. May 29—tf.

HOWLAND, WOOD, ENGRAVER, 69 NASSAU ST. N.Y.

EXCELSIOR!

SPRING FASHION FOR GENTLEMEN'S

HATS.

BEEBE & Co., 156 Broadway, keep constantly on hand an extensive assortment of **HATS** of the most fashionable styles, which for lightness, beauty, elasticity and durability, are unequalled by any other establishment in the city or in the country. Mar. 1853.

CHOICE POULTRY

FOR SALE,

Comprising the following Varieties, viz.:

COCHIN CHINA

AND

CANTON FOWLS.

BUFF, BROWN, BLACK, AND WHITE

SHANGHAES.

CHITTAGONGS,

OR

GRAY SHANGHAES.

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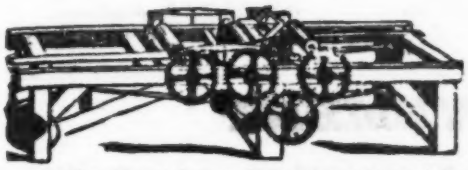
SUMATRA GAMES.

THE subscriber offers for sale Domestic Poultry of the above varieties, warranted true to their name, and purely bred—*equal in every respect* to any stock in the country. Orders for the same, addressed to the subscriber, will receive prompt attention.

CHARLES SAMPSON, West Roxbury, Mass.

1852-56.

WOODWORTH'S Patent Planing, Tonguing, Grooving, and Rabeting Machine.



RECENT Decisions and Jury trials having fully and finally established all the claims of the Woodworth Patent, the subscriber is now prepared to furnish the most perfect planing machines ever constructed, and to license parties to use them in the counties of Allegany, Broome, Cattaraugus, Chenango, Columbia, Duchess, Fulton, Madison, Montgomery, Otsego, Putnam, Queens, Rockland, Suffolk, Tioga, Tompkins, Ulster, Washington, Westchester, Wyoming, Yates, and the other *unoccupied towns and counties in the State of New-York; and in the northern half of the State of Pennsylvania*, in the counties of Bradford, Crawford, Clinton, Elk, Lawrence, Lycoming, Luzerne, Mercer, M'Kean, Pike, Potter, Susquehanna, Tioga, Wayne, Warren, and Wyoming.

THIS JUSTLY CELEBRATED MACHINE was patented December 27, 1828, and the patent having been extended to the 27th day of December, 1856, it has NOW FIVE YEAR'S UNEXPIRED TERM. This machine, at one operation, reduces to a thickness, and planes, tongues, grooves, beads, and rabets in the best manner, 3,000 FEET OF BOARDS OR PLANK IN AN HOUR; and is also extensively used for planing, sticking, &c., door, sash, and blind stuff, and for sticking mouldings. All kinds of planing are performed by it in a better manner, and more expeditiously and cheaply, than it can be done by any other machine. The price of a complete machine is from $150 to $760, according to size and capacity. From 4 to 10 horse-power will drive the machine, and it will run for years without repairs.

Nine tenths of all the planed lumber used in our large cities and towns is now dressed with Woodworth's Machines. Those manufactured by the subscriber may be seen in constant operation in the Steam Planing Mills at Albany, Astoria, Canisteo, Dunkirk, Elmira, Flushing, Gibson, Jamestown, Leroy, Lockport, Newburg, Olean, Stapleton, Syracuse, Warrensburg, &c.

For Machines and Rights to use them in the unoccupied towns and counties in New-York and the northern half of Pennsylvania, apply to

JOHN GIBSON, Planing Mills,
Albany, N. Y.

Apr. 17-tf.

Manufacturers' Supply Store.

OSCAR SCHENCK & CO.,

No. 132 WATER STREET,

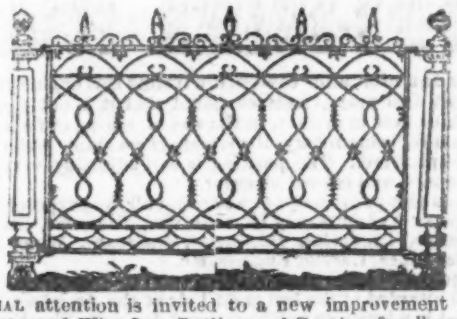
(Corner of Pine,) NEW-YORK.

DEALERS in Cotton, Woollen, Silk, and Carpet Manufacturers' Articles, and manufacturers of

WEAVERS' REEDS, HEDDLES, BOBBINS, SPOOLS.

Agents for the sale of the latest improved Shearing and Napping Machines, Wool Pickers, Cloth Winders, Regulators, Satinet Warps, &c. Oils, Sperm, Lard and Olive, and Oil Soap.

NEW-YORK WIRE RAILING WORKS.



SPECIAL attention is invited to a new improvement in the manufacture of *Wire Iron Railing and Grating*, for all purposes where wood, cast or wrought iron are used, at half the cost; to wit,—for Cemeteries, public and private grounds, farms, balconies, verandahs, alcoves, &c., from 50 cts. to $2 per lineal foot.

Portable and *permanent* Wire Fence for railroads, farms, parks, lawns, &c., manufactured on an entirely new plan, from 9 to 18 cts. per foot, 4½ feet high, with Iron Posts.

The *Portable Iron Bedstead*, exceedingly ornamental, is so constructed as to fold up into a convenient form for transportation, and only requires to be seen to be adopted.

N. B.—All kinds of Wrought or Cast Iron Buildings made to order, and Designs and Circulars procured by addressing the manufacturer and proprietor,

JOHN S. WICKERSHAM,
240 Broadway.

Warerooms of the New-York Patent Machine Shop.

Works 59 and 61 Lewis street.

Agents, C. B. C. & Co., 215 Pearl street.

Medals have been awarded for the above, both by the Am. Institute of N. Y., and by the Franklin Institute of Philadelphia.

Mar. 13-1y.

George W. Putnam's

PATENT

SAW-FILING MACHINE.

THE Subscriber [sole proprietor of the above Patent] keeps Machines constantly on hand at Glenn's Falls, Warren Co., N. Y. Will ship to order, to any part of the United States. Putnam's Machine, attended by one man, will file more saws in a given time than three men by hand in the old way, and do the work much better, at a great saving of files and saws. Lumbermen will find it to their interest to have one of these machines upon their mills. Terms for a single Machine, with right of use, Seventy-five Dollars.

ALBERT H. CHENEY.

July 17, 1852.

QUARTZ MINING MACHINERY

THE Subscriber is extensively engaged in manufacturing Machines for stamping Quartz Rock, for Virginia and California, and has made several improvements by which he can pulverize more than three times the quantity of Quartz Rock, and with less power, than any other machinery in the country.

Also an improved Amalgamator by which every particle of gold can be collected. Miners who have used the Ernsters or shaking tables, and have collected a large amount of sand, can use these machines to work the sand over, paying them a h some profit.

Persons wishing to go into the Quartz mining business wo do well by calling on the subscriber, who has had several ye experience in manufacturing machinery for mining.

Mar 27–1y. WM. BURDON, *Machinist*,
102 Fulton street, Brookly

NEW IMPROVEMENT
IN
PLANING MACHINES.

HAVING received letters patent for my New Improved Planing Machine for planing boards and planks, I now offer for sale Machines and Rights for States, Counties, or Cities. My Improved Machine is unlike all others in its operation, and it will produce more work and of better quality than any others now in use. The principles of its operation are simple, as there are no gear or belts in or about the machine, these being all placed beneath the floor. The amount of work done is only limited by the number of persons feeding the machine. A matching apparatus works in connection with this machine, by which the Boards are planed and matched in the same operation. planing and matching are superior to that produced by the h plane; and both sides of the board are planed at the same t if desired.

One of these machines will be in full operation at the Mac Shop and Foundry of Messrs. F. & T. Townsend in this cit the 1st of June next, where it can be seen.

GEORGE W. BEARDSLEE,
Residence 764 Broadway, Alban

June 5th.

A. HALL'S
Fire-Brick Works,
PERTH AMBOY, N. J.

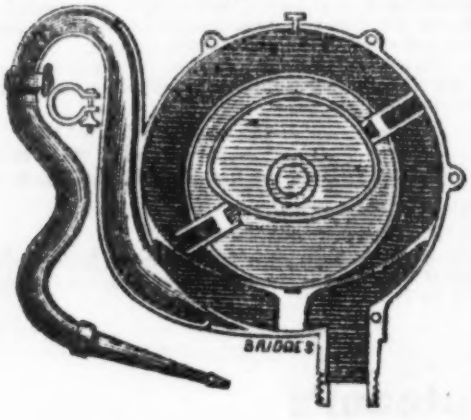
A LARGE stock of the best No. 1 Fire Brick constantly on hand. Vessels of any draft can load at any stage of the tide and season of the year.

SHAPES.—Large and small Bull-Heads, in walls, from 5 feet to 8½ feet circle; Wedges, Split Brick, Soaps, Cupola, for any circle, from 18 inches to 30 inches, constantly on hand.

KAOLIN of the best quality.

ONE MILLION Bricks can be made at this factory in six mon and none are made from October to April. All orders for usual shapes should be given in the Spring, as bricks are *b* and made much *cheaper* in the *summer months*. Vessels loa with dispatch. Orders promptly executed. Mar. 3 185

A. W. CARY'S ROTARY FIRE-ENGINE PUMPS.



THE Inventor, after thoroughly testing this engine pump, the past two years, feels confident that it is not equalled any thing now in market, in the way of raising or forcing wa the motion being rotary, the stream is constant, without the of an AIR vessel. The packing is self-adjusting, very dur and cannot well get out of order.

These pumps are well calculated for all the purposes for w pumps or hydrants may be used, viz., Factories, Steamb Tanneries, Breweries, Distilleries, Railroads, Water Stati Hotels, Mines, Garden Engines, &c.

Among the many testimonials given of this pump, is a medal awarded at the last great Fair of the American Insti

No. 1 is a house or well pump and domestic Fire Engine, will raise from 20 to 30 gallons per minute.

No. 2 will raise 100 gallons at 120 revolutions.
No 2½ " 200 " 120 "
No. 3 " 300 " 120 "

The quantity raised can be doubled by doubling the rev tions. These machines are manufactured and sold by the scribers at Brockport, N. Y., also in this city, 48 Courtland st (corner of Greenwich,) by J. C. CARY.

Sept. 18–1y. CARY & BRAINER

Machinists' and Manufacturers' Tools.

O. SNOW & Co., Union Works, Meriden, Ct., having increased their facilities for manufacturing Lathes, Planers, &c., have now on hand, finished and finishing off. Slide Lathes, of a variety of sizes and lengths, at prices varying from $125 to $900, according to size and finish; also, Hand and Power Planers for Iron, 2, 3½, 6, and 10 feet Beds. Milling Machines, Hand Lathes, wit without Iron Beds, comprising six different sizes, all of the approved construction, and warranted of the best qualit work. Nov. 13–6m

HIGHLAND NURSERIES, NEWBURGH,

A. SAUL & CO.,

Is inviting the attention of their Patrons and the Public in neral to their very extensive Collection of

Fruit and Ornamental Trees, Shrubs, &c.,

Would respectfully inform them that the stock which they er for sale the coming spring is unusually fine, both as re- ds quality of trees, variety of kinds, &c., &c.

The soil and climate of our Hudson Highlands have rendered verbial the success of the trees sent from here to all parts the Union; and the accuracy and precision so indispensable the propagation of fruit trees for which this establishment s long been celebrated, render errors in nomenclature of re occurrence.

They have propagated in large quantities, all the *leading tandard* varieties which are proved best adapted for general ltivation, especially those recommended by the American Po- ological Society, as well as all *novelties*, both of *native* and *reign* origin.

To particularize within the limits of an advertisement would impossible; they refer to their General Catalogue, a copy of hich will be sent to all *post-paid* applicants, on enclosing a st-office stamp.

The following comprise a portion of their Stock, and are all a fine growth: viz:

Pears in over 400 Varieties, both Standards on their own ock for orchard culture, and on the Quince for Dwarfs, Pyra- ids, and Quenoucle for Garden Culture.

Apples in over 300 varieties, both Standards and Dwarfs, Also, Cherries, both Standards and Dwarfs, Plum, Apricot, Peach, Nectarine, and Quince trees in every variety.

Grape Vines, both Native and Foreign, for Vineries. Also, Gooseberries, 50 best Lancashire Varieties; Currants, Raspberry and Strawberry plants, of all the leading and known kinds, together with Sea Kale, Asparagus, and Rhubarb roots.

Ornamental Trees, Shrubs and Vines, both deciduous and evergreen, suitable for street and lawn planting, embracing all the new and rare Conifers, Weeping Trees and Shrubs of recent introduction.

Roses in every variety, including Hybrid Perpetual, Hybrid Bourbon, Hybrid China, Hybrid Damask, Prairie Boursault, Ayrshire, and other hardy climbing and Garden Varieties, as well as the more tender—Tea, China, Bengal, Bourbon, and Noisette Varieties.

Herbaceous plants: A large collection of Peonies, Phloxes, Campanula, Ponstemon, Œnothera, &c., &c.

Dahlias and bedding plants for the parterre and flower garden, in large quantities and varieties.

Hedge Plants: 100,000 Buckthorn and Osage Orange plants, two years' growth; Arbor Vitæ for Screens, &c., &c.

Dealers and Planters of trees on a large scale will be dealt with on the most liberal terms.

A. SAUL & Co.

Newburgh, Feb. 20, 1853.

PUMPS, FIRE ENGINES,

FOUNTAINS, &c.

The subscriber manufactures Double-Acting Lift and Force umps, which from their simple construction and little liability disorder, (or when in any way deranged, they are very read- examined for the trouble,) are well calculated for Southern d West India Markets, for Factories, Mines, Railroad Water ations, Breweries, Tan Works, Stationary Fire Engines, Ships, eamboats, Family Purposes, Hydropathy Establishments, or r any purpose for which Pumps may be required. I manu- cture them of any size required.

VILLAGE AND FACTORY FIRE ENGINES.

ey ha e a Double-Acting Lift and Force Pump, they are ght, easily handled, and worked by four men.

CISTERN AND WELL PUMPS,

r any pth required, either for manual or other forms of ower. T y are entirely of metal.

GARDEN ENGINES.

GARDEN ENGINES with a small size Double-Acting Lift and Force Pumps, so arranged upon two wheels that one person can wheel them from place to place, and are well calculated for Agricultural and Horticultural purposes, Washing Windows, and can be used in case of fire.

ORNAMENTAL CAST IRON FOUNTAINS,

Of various descriptions and sizes, with Jets of various descriptions, Copper Riveted Hose of all sizes, used for fire purposes, Molasses, or Locomotives. Lead, Cast Iron, Wrought Iron, and Gutta Percha Pipes. Brass Coupling of all sizes and descriptions. Copper Work, &c., &c.

Purchasers are respectfully invited to call, or any communication by mail will have immediate attention.

G. B. FARNAM,

Feb. 1853. **34 CLIFF STREET, (up Stairs,) NEAR FULTON.**

CHARLES F. MANN,

FULTON IRON WORKS, TROY, N. Y.

BUILDER of Steam Engines and Boilers of various patterns and sizes, and with the late improvements: also, his improved ortable Steam Engines and Boilers combined, occupying but little space, economical in fuel, safe and easily managed. These ngines are well adapted to Railroad Depots, for sawing and pumping, requiring no brick to set them. Double Action, Lift, and orce Pumps, for pumping Mines, &c.; Shafting and Pulleys, for Factories, Tools for Machine Shops. Brass Castings and Ma- hinery made to orde at the shortest notice.

March, 3m*

1,000 BOOK AGENTS WANTED.

INTELLIGENT and industrious men wanted in every part of the United States, to engage in the sale af the best assortment of lustrated, Popular and useful Books published in the country.

Men of good address, having a small capital of from $25 to $100, can do well by engaging in this business, as the induce- ents offered are of the most liberal character. For further particulars, address, postage paid,

ROBERT SEARS, Publisher, 181 Williams St., New-York.

May, 1853.—1t2108.

BELLS! BELLS! BELLS!

THE subscribers manufacture and keep constantly on hand, Church, Factory, Steamboat, Locomotive, Plantation, and School-house Bells, varying in weight from 10 lbs. to 4,000 lbs., with the most approved hangings.

At this Establishment small Bells pass through the same process in manufacturing as large ones, and we flatter ourselves that the Bells turned out at this Foundry are superior in point of tone and workmanship to those of any other in the Union.

We have 13 Gold and Silver Medals which have been awarded for the *best* Bells. The patterns have been improved upon for the past thirty years. Communications by mail will receive prompt attention. Orders for Bells of any size can be filled as soon as received.

Address, at West Troy, N. Y., **A. MENEELY'S SONS.**

Hitchcock & Co., Agents, 116 Broadway, New-York.

MATHEMATICAL INSTRUMENTS FURNISHED, OF THE BEST DESCRIPTION. Dec. '52, 1y.

MEADE BROTHERS,
DAGUERREOTYPE ARTISTS
AND IMPORTERS OF
DAGUERREOTYPE GOODS,

233 BROADWAY, NEW-YORK, **Four doors above the Astor House.**

MEMBERS OF THE SOCIETE LIBRES DES BEAUX ARTS, PARIS.

Daguerreotypes taken in every style known in the Art, daily. We have received 7 Medals, 8 Diplomas, and Presents and complimentary Letters from the Crowned Heads of Europe, for the superiority of our Pictures.

P. S.—Meade Brothers will open a branch of their Establishment, on or about the 1st of May next, in the city of Williamsburgh, L. I., which will be conducted on the same liberal scale for which their New-York establishment is so celebrated.

CHAPIN'S PATENT DUPLICATE TURNER.

THE IMMENSE VARIETY OF SCROLL, WAVE, AND Serpentine work, to which this machine is adapted, is for purposes of an unlimited multiplicity, and its capacity for rapid progress is equal to its variety of work.

For example see Fig. 2 on another page.

The horizontal cut in this fig. is a partial representatio of a Cottage Bedstead post 4 inches wide and 1½ thick, one hurdned of which are turned at a time, or at what is called one mill full, and from 2 to 3 mills full are turned in a day, the cylinder being 4 feet in diameter.

In this way fence pickets are beautifully ornamented from and to end if desired; new styles chair stuff, table legs, scroll eet, fancy table frames, drawer fronts, new style stan balusfers, picture frames, wave moulding, tree boxes, grap arbors, rchitectural decorations for country residences, &c., &c., are legantly and smoothly turned out, with waved surfaces if desired, which are beyond the reach of all other practices of the present day.

Another and still more splendid adaptation of this machine to the manufacture of DRIGGS & CHAPIN'S patent wave lath blind lath, which are now coming into use in this city. Blind lath being thin, large quantities are made at a time. See Fig. 2, on first page. Address

DRIGGS & CHAPIN,

124 Amity Street, New-York.

Where one of the machines is in operation, and where orders for Machines, their work, and rights of using, are solicited.

N. CHAPIN,
J. F. DRIGGS,
ROBT. PATTON. } PROPRIETORS.

Apr. 3i.

THE STOWELL EVERGREEN SWEET CORN.

A QUANTITY of this new and valuable variety, from seed raised by Professor J. J. Mapes, LL. D., for sale. Per bushel, $16: peck, $5; half peck, $3; quart, $1; sent by express or mail to any part of the country, on receipt of the money by post. This is beyond all doubt the best and most prolific kind of Sweet Corn evergrown. No Farmer should be without it. With ordinary care it will repay cost a hundred times over the first season.

DIRECTIONS.—A quart of the seed will plant one tenth of an acre, four to five kernels to the hill. Prepare ground well. Cultivate like common corn. It may be planted any time before the middle of June; Earlier better.

[From the Working Farmer.]

"We have long been convinced that sweet corn would prove superior as green fodder to any other; and the only objection urged against its use has been the smaller yield per acre compared with other kinds. We are now prepared to recommend the use of Stowell's Evergreen Corn for this purpose. The staks are nearly as sweet as those of sugar-cane, and DOUBLE THE QUANTITY can be grown to the acre, to that resulting from ordinary sweet corn." Apr. 3t*

Another advantage claimed for this corn by Prof. Mapes though the subscriber does not endorse it, is, that when desired it may be kept GREEN AND FRESH ALL THE YEAR ROUND.

[Prof. Mapes, in the "Working Farmer," gives the following directions for preserving the Stowell Evergreen Sweet Corn:—]

"The ears should be gathered when fully ripe, and the husk should be tied at the nose, (silk end,) to prevent drying, when THE CORN WILL KEEP SOFT, WHITE, AND PLUMP FOR MORE THAN A YEAR, if in a dry and cool place. At the dinner of the Managers of the Fair of the American Institute, last year, we presented them with this corn of two successive years' growth boiled, and there was no perceptible difference between the two. This year we sent to the Fair one stalk containing eight full and fair ears, and could have sent many hundred stalks of six ears each."

Many other recommendatory notices might be given.

All orders promptly supplied.

Address, post-paid,

ALFRED E. BEACH, White Plains, Westchester Co., N. Y.